Journal of

THE AMERICAN DIETETIC ASSOCIATION

VOLUME 17
January, 1941-December, 1941

Edited for the Association
Under the Direction of the Journal Board
BY
MARY PASCOE HUDDLESON

THE AMERICAN DIETETIC ASSOCIATION
CHICAGO
1941

OFFICERS, AMERICAN DIETETIC ASSOCIATION, 1941–42

Headquarters of the Association, 185 N. Wabash Ave., Chicago

Honorary President, LULU G. GRAVES, 2605 Haste St., Berkeley, Cal.

EXECUTIVE BOARD

President, NELDA ROSS, Presbyterian Hospital, New York
President-Elect, FRANCES MACKINNON, Bureau of Maternal and Child Health, State Board of Health, Phoenix, Arizona
Vice-President, and Chairman, House of Delegates, ELIZABETH PERRY, Cleveland City Hospital, Cleveland
Secretary, and Chairman, Membership Committee, MARY W. NORTHROP, King County Hospital System, Seattle
Treasurer, and Chairman, Finance Committee, MARIE L. CASTEEN, Executive Office, Hotel Pennsylvania, New York
Administration Section Chairman, CONSTANCE C. HART, Board of Education, Rochester, New York
Community Education Section Chairman, BERNICE HOPPER, State Department of Public Health, Nashville, Tennessee
Diet Therapy Section Chairman, DOROTHEA FLETCHER TURNER, University of Chicago Clinics
Professional Education Section Chairman, BESSIE BROOKS WEST, Kansas State College, Manhattan

HOUSE OF DELEGATES

Chairman, ELIZABETH PERRY, Cleveland City Hospital, Cleveland
Secretary, MILLIE E. KALSEM, Cook County Hospital, Chicago

STAFF

Business Manager, DOROTHY I. LENFEST, 185 N. Wabash Ave., Chicago
Educational Director, GLADYS E. HALL, 185 N. Wabash Ave., Chicago
Journal Editor, MARY P. HUDDLESON, New Canaan, Connecticut

ADVISORY COMMITTEE

MALCOLM T. MACEACHERN, M.D., American College of Surgeons, Chicago 1942
JOE CLEMONS, M.D., Roosevelt Hospital, New York 1943
To be appointed 1944

JOURNAL BOARD

ELLA M. ECK, University Clinics, University of Chicago 1942
ROSALIE S. GODFREY, Alice Littlefield Dormitory, The University of Texas, Austin 1943
ESTELLE E. HAWLEY, University of Rochester Medical School, Rochester, New York ... 1944
MARY W. NORTHROP, King County Hospital System, Seattle 1945
GRACE MACLEOD, Teachers College, Columbia University, New York 1946
BEULA BECKER MARBLE, 131 Laurel Rd., Chestnut Hill, Massachusetts 1947

PLACEMENT BUREAU BOARD

RUTH FORSBERG, Swedish Hospital, Seattle 1942
SELMA STREIT, Scottish Rite Dormitory, Austin, Texas 1943
To be appointed 1944
ROSINA VANCE, New England Deaconess Hospital, Boston 1945
ANNA M. TRACY, Florida State College for Women, Tallahassee 1946
To be appointed 1947

INVESTIGATION BOARD

HARRIET BARTO, University of Illinois, Urbana 1942
LILLIAN B. STORMS, Gerber Products Company, Fremont, Michigan 1943
ROSALIE S. GODFREY 1944

COMMITTEE CHAIRMEN

Convention, MARY M. HARRINGTON, Harper Hospital, Detroit
Defense, LENNA F. COOPER, Montefiore Hospital, New York
Educational Exhibits, FRANCES B. FLOORE, Eastman Kodak Company, Rochester, New York
Finance, the Treasurer; MARGARET COWDEN and BEULAH HUNZICKER
Historian, LOUISE STEPHENSON, Presbyterian Hospital, New York
Legislative, ALMA BERING, Sheppard-Pratt Hospital, Towson, Maryland; and EVELYN ANDERSON
Library, GLADYS E. HALL
Nominating, KATHARINE BROWN, Moore-White Clinic, 511 S. Bonnie Brae, Los Angeles
Organization and Procedure Book, FRANCES MACKINNON
Press Relations, ELEANORA SENSE, 76 Washington Square South, New York
Program, MABLE MACLACHLAN, University Hospital, Ann Arbor
Revisions, NELL CLAUSEN, Children's Hospital, Milwaukee

Hospital
New. Curr.

JOURNAL OF THE
AMERICAN DIETETIC ASSOCIATION

VOLUME 17 January, 1941 NUMBER 1

SIGNIFICANCE OF DIFFERENT LEVELS OF VITAMIN INTAKE[1]

HENRY C. SHERMAN

Department of Chemistry, Columbia University, New York

QUANTITATIVE studies of the effects of different levels of vitamin intake, and other long-term experiments now greatly facilitated by our knowledge of the vitamins, are showing that the zones between the merely adequate and the optimal in nutrition are much wider for some factors than for others. Two examples from among the longer-known factors may be cited in illustration before we take up the vitamins directly. *Of total food calories* we have known for some time that we cannot make good use of much more than we actually need—even a 20-per cent margin soon proves itself too much for best results. *Of calcium*, on the other hand, recent research shows that something like a 200-per cent margin above the level of minimal need is required for the best results in permanent nutritional well-being.

The term *vitamins* is applied to a number of substances some of which are quite unlike each other in chemical nature and nutritional function, so we should not expect that the relation between the merely adequate and the optimal intake will be similar for all vitamins. Of some, the best margin may be as narrow as for calories; of others, it may be as wide as for calcium. Before the significance of different levels of intake can be understood *fully* there must be thorough investigation of each vitamin on its own merits with no presumption that what is found for any one will be true for any other.

In what follows, we shall consider four of these substances in turn: vitamin A, vitamin C, thiamin, and riboflavin.

Batchelder fed laboratory animals through two generations upon diets alike in other respects but representing four levels of vitamin A intake: that of minimal adequacy, and two, four, and eight times this minimal level. The original experimental animals, placed on these different diets at the end of infancy, showed successively increased benefit

[1] Read before a General Session, American Dietetic Association, New York, October 21, 1940.

Grateful acknowledgment is made to the several junior colleagues in the nutrition research laboratory of the Department of Chemistry at Columbia, upon whose experimental work this paper is largely based; and also to the Rockefeller Foundation and the Carnegie Corporation and Institution for grants in aid of our research.

OPK

from the successive increments of vitamin A, up to about fourfold the minimal adequate level. Here they seemed to have reached their plateau of optimal response, but the vigor of their offspring was still benefited by a further rise in the vitamin A value of the family dietary. On one occasion when I was showing a summary of Batchelder's findings, a geneticist asked: "What do you mean by benefit to the offspring; have you any improvement there that is transmissible through the father?" And when I replied that we had no expectation of changing the germ plasm by improving the diet, he asked: "Then does the higher vitamin A intake do anything more than make the mother a better producer of milk?" I think it does do more; I think the mother's better diet benefits the offspring during pregnancy as well as during lactation; and (while there is not time to discuss the reasons) I think the prenatal benefit is probably something more than merely the conveyance of a larger bodily store of vitamin A to the young before birth. It is probable that the fetus benefits also through the fact that it is developing in a superior environment because of the extra vitamin A that the mother gets from her food. The paper published by Steininger, Roberts, and Brenner from the University of Chicago last year brings forward an impressive amount of evidence that the concentration of vitamin A in the blood varies with the level of nutritional intake; and some of our current work at Columbia also seems to be supporting the view that the level of vitamin A intake influences the concentration of this factor in the other tissues as well as the liver, and thus significantly affects the general *internal environment* of the body.

In the case of vitamin C, the influence of the intake upon the concentration levels in the body has been more widely recognized. Several investigators have studied the blood plasma, and some of them the cerebrospinal fluid also, quantitatively determining the changes in vitamin C concentration which result from different intakes. Meanwhile King and Menten have shown that vitamin C increases the body's ability to deal with the toxins resulting from infections; and Ecker and Pillemer have established a definite relation of this vitamin to immunological complement, and further have offered evidence that probably four to eight times as much vitamin C is needed to maintain an optimal complement-value of the blood as to prevent symptoms of scurvy. Ecker and Pillemer report this condition of "full complementary activity" as corresponding with the maintenance of 1.0 milligram of vitamin C per 100 cc. of blood plasma in the guinea-pig; while several investigators have found about the same concentration (1.0 to 1.5 "milligrams per cent") of vitamin C in human blood, when the nutritional intake of this vitamin is kept on a sufficiently liberal level. Lower intakes result in lower concentrations of vitamin C in the blood plasma (and, as consistently found when both are examined, in the cerebrospinal fluid also) in which condition the body is said to be living "on a low level of vitamin C nutrition." How low this level must be, and for how long, before distinct symptoms appear, is not yet established, probably because it is influenced by so many circumstances and because people possess rather wide individual variability in this respect.

Much recent evidence supports the growing view that wise nutritional management will regularly provide what would hitherto have been considered very large quantities of antiscorbutic food: as ample provision for individual variability of need; for the increased demands of pregnancy and lactation; and for the fact that the body's rate of destruction, and therefore its level of nutritional need, of vitamin C (possibly also of the "vitamin P" which apparently accompanies ascorbic acid in citrus fruits) is greatly increased by any of several common infections, mechanical injuries, or physiological strains or exertions. Even athletic exercise is reported as materially increasing the metabolism of, and so the need for, vitamin C. To what extent the level of vitamin C intake provided by the daily food influences, in the long run, the aging process is a more difficult problem. Some may even consider it a speculative problem at the present time. To me, there seem to be indications, which if fragmentary and inconclusive are at least scientifically suggestive, that what McCollum and Simmonds have so happily called the conservation of the characteristics of youth is helped by a permanent habit of high intakes of vitamin C in one's daily food. It would be well if some institution would divide its population, one-half to continue on the dietary hitherto accepted as good and the other half to receive a larger daily allowance of whatever fruits and vegetables of high antiscorbutic value they like best. Inasmuch, however, as the full effects might appear only in the course of a lifetime, laboratory experiments with animals whose natural life-cycle is short may also prove highly instructive.

Even more, perhaps, do we need full-life experiments with different liberal levels of vitamin B_1 (thiamin) in the daily diet. As recently as the White House Conference on Child Health, prominent pediatricians after mature deliberation united in emphasizing the view that to provide a surplus of this vitamin in the food would do no more good than over-salting it. And about the same time Aykroyd wrote that fortunes have been made by selling vitamin B_1 concentrates to people most of whom derive no known benefit from the extra intake of this vitamin. But more recently medical literature has abounded in reports of definite benefits resulting from increased thiamin intake in a wide variety of conditions, and much (although not universal) professional support has been given to the impression that our people will be benefited by increased thiamin intake almost without exception or limitation. Certainly there has been a noteworthy unanimity of favorable tone in clinical reports and extremely few suggestions of any danger from high levels of intake. It seems to be sufficiently established that too great dependence upon over-refined food may result in suboptimal intakes even in some dietaries freely chosen under comfortable economic conditions; and also that thiamin therapy is helpful in many clinical cases. But those who should be our best advisers are by no means united as to how far present conditions call for compulsory fortification of staple foods; or whether such fortification, however effective as regards thiamin itself, would create a false sense of security as to the all-round adequacy of the present-day food supply to the growing standards of our nutritional knowledge. In my opinion, whether fortification becomes prevalent

or not, we should have continuing nutritional education of the public to the importance of less use of foods which have been artificially refined, and more use of foods which have not been thus denatured. Saner habits of food selection in this respect will raise the levels of intake of several nutritional factors, including thiamin, and such degrees of increased intake as come about through thus following the guidance of the newer knowledge of nutrition in the daily choice and use of food may be welcomed with entire confidence. Meanwhile, as thiamin concentrates will probably be a rather popular form of self-medication, it is to be hoped that very thorough experiments will be made with laboratory animals to determine the effects of higher intakes of thiamin when continued throughout the lifetime of the individual, and successive generations of the family.

In the case of riboflavin we already have considerable evidence of the kind just mentioned, and further experiments are now in progress. The work of Dr. Campbell, of Dr. Ellis, and of Miss Zmachinsky shows that dietary changes which increase the riboflavin intake not only increase the rate of growth but also are clearly beneficial to the life-cycle as a whole and to the offspring. If means can be found, we hope now, by experiments with riboflavin as the sole variable, to define more precisely the extent to which increased levels of intake continue to enhance the permanent nutritional well-being. Also we hope to study further the related question, of at least equal scientific interest, whether all increases of intake which are beneficial in their effects upon the life process can be shown to influence the concentration-levels of riboflavin in body tissues, or whether there will be found evidence that the level of riboflavin intake influences the body's internal environment in still other ways.

Attributes of a physician

In the midst of a cynical world it is well to reaffirm one's faith in such a thing as altruism, the desire to serve one's fellow men. I may be pardoned a quotation by referring to the tribute paid to the physician by Robert Louis Stevenson. The physician, as a rule, he comments, stands above the common herd, shares as little as any in the defects of a period and most notably exhibits the virtues of the race; he says of the physician: Generosity he has, such as is possible to those who practice an art, never to those who drive a trade; discretion tested by a hundred secrets; tact tried in a thousand embarrassments; and, what are more important, Herculean cheerfulness and courage. So it is that he brings air and cheer into the sickroom and often enough, though not as often as he wishes, brings healing.—*Digests and Reviews, The broadening horizons of medicine, J. A. M. A.: 115, 1142, 1940.*

RECENT ADVANCES IN CLINICAL APPLICATIONS OF THE B-VITAMINS[1]

NORMAN JOLLIFFE, M.D.

Medical Service of the Psychiatric Division, Bellevue Hospital, New York, and the Department of Medicine, New York University College of Medicine

THE vitamin B complex is known to contain at least a dozen fractions, five of which are available in crystalline form for clinical use. These are thiamin chloride (B_1), riboflavin (B_2), nicotinic acid (p-p factor), pyridoxin (B_6), and pantothenic acid (filtrate factor). Through the controlled use of these crystalline B-vitamins the clinical investigator has made progress, in the recognition, diagnosis and treatment of deficiency diseases, far beyond what was possible when only concentrates were available. This progress has also been quickened by the development of biochemical techniques which are only now becoming available to the clinic for aid in diagnosis and treatment.

The manifestation of a predominant deficiency in any one of the B-vitamins is usually complicated by a deficiency in another B-vitamin, or even by a deficiency in some other vitamin; in fact, avitaminosis in man is, more often than not, a polyavitaminosis. In addition, the predominant deficiency may be complicated by a protein or a mineral deficiency. It is therefore obvious that the clinical picture of an avitaminosis may be a varied and confusing one.

The diagnosis of deficiency in the B-vitamins depends upon an evaluation of the dietary history, the symptoms and the signs presented by the patient. In certain instances the laboratory provides valuable information.

A vitamin B deficiency should be suspected in the following groups of persons:

1. *The Indigent and Low-Income Groups.*—The average American diet affords only a small margin of safety in the B-vitamins, particularly in vitamin B_1 and riboflavin. This safety margin possibly provides sufficient amounts of the B-vitamins to prevent manifest deficiency disease under ordinary physiologic conditions. It is becoming more and more evident, however, that the average American diet provides neither an optimal quantity of the B-vitamins for maximum health nor the minimum necessary when the physiologic needs are raised by illness or by increased activity. As this applies to the average diet, it follows that a considerable fraction of the American population must consume a superaverage and a considerable fraction a subaverage amount of the B-vitamins.

2. *Persons Who Have Erroneous Dietary Habits and Food Idiosyncrasies.*—Regular consumption of extra-dietary supplements of vitamin-free calories as obtained from sugar, corn syrup, alcohol, candy, pastries, or soft drinks, may render a marginal diet inadequate in the B-vitamins. In evaluating the adequacy of a diet we must always scrutinize the dietary of any subject who remembers what he has eaten. The average person consuming a mixed and varied diet does not clearly recall what he has

[1] Read before a General Session, American Dietetic Association, New York, October 21, 1940.

been eating. Only persons having food idiosyncrasies, dietary faddists, or those living on a prescribed menu are able to give a detailed dietary history. Inadequate vitamin intake should always be suspected in these instances.

TABLE 1

*Factors altering the vitamin B_1 requirement**

- I. Increase in Total Metabolism
  - A. Abnormal activity, as associated with:
    1. Prolonged strenuous activity
    2. Delirium
    3. Manic depressive psychosis, manic type
  - B. Fever, especially of long duration, as in:
    1. Tuberculosis
    2. Typhoid
    3. Malaria
  - C. Hyperthyroidism
  - D. Pregnancy
  - E. Rapid growth
- II. Faulty Assimilation
  - A. Diarrhea, especially of long duration, as in:
    1. Ulcerative and mucous colitis
    2. Intestinal parasites
    3. Intestinal tuberculosis
    4. Sprue
  - B. Gastro-intestinal fistulae
  - C. Diseases of liver or gallbladder
  - D. Achlorhydria
  - E. Carcinoma of stomach
- III. Increased Excretion
  - A. Polyuria, as in:
    1. Uncontrolled diabetes mellitus
    2. Diabetes insipidus
    3. Long continued excessive fluid intake, as in urinary tract infections
  - B. Lactation

* Reproduced through courtesy of New Internat. Clinics.

3. *Alcohol Addicts.*—These subjects often consume amounts of vitamin-free alcohol sufficient to lower the vitamin/calorie ratio significantly, even when an otherwise adequate diet is maintained (1–3). A smaller consumption of biologically good calories, and impaired absorption or utilization of the vitamin, are additional factors leading to vitamin deficiency in this group.

4. *Patients Having Diseases Altering the Vitamin B Requirement.*—The better known of these diseases are listed in table 1. This table indicates the wide possibilities for the development of secondary vitamin deficiencies.

THIAMIN DEFICIENCY

The signs and symptoms attributed to thiamin (vitamin B_1) deficiency are legion, the most definite being a neurasthenic, a neurologic and a circulatory syndrome.

The neurasthenic syndrome is probably the most common manifestation of isolated vitamin B_1 deficiency. As in neurasthenic syndromes of any origin, the symptomatology is varied but its outstanding symptoms are anorexia, fatigue and insomnia. Completing the picture of neurasthenia are such complaints as irritability, "gas," nausea, constipation, uncomfortable sensation in the abdomen and other parts of the body, depression, backache, headache (usually of the occipital or constricting band type), sighing, palpitation, and precordial distress. For several years I have been cognizant of this group of symptoms in my patients having objective signs of a vitamin deficiency. I usually attributed it to neurasthenia on the basis of an abnormal psyche which, leading to further dietary restrictions, in turn led to the development of objective signs. Adequate treatment for the deficiency was followed not only by disappearance of the objective signs but also, as a rule, of the neurasthenic syndrome. I then applied to subjects having the neuras-

thenic syndrome without objective signs of vitamin deficiency the treatment-regimen of dietary correction, vitamin supplements rich in the entire B complex, and thiamin chloride. Many, though not all, of these patients were helped. The improvement was attributed to better nutrition plus the psychotherapy of this dietary regimen. Not until Williams, Mason, Wilder and Smith (4), in a well-controlled experiment with human subjects reproduced this characteristic neurasthenic syndrome by inducing an isolated thiamin deficiency, have I been willing to include this syndrome as a manifestation of thiamin deficiency. It should not be inferred, however, that all neurasthenia is based on thiamin deficiency. Almost any agent causing the triad of anorexia, fatigue and insomnia, if not soon relieved, will cause, in susceptible persons, the development of other neurasthenic symptoms. Nevertheless the proportion of neurasthenia caused by vitamin deficiency may be larger than is now commonly believed.

The peripheral neurologic manifestations of vitamin B_1 deficiency are those of bilateral and symmetrical polyneuropathy involving first and predominantly the lower extremities. The peripheral neuropathy may be mild, causing little or no disability; or severe, causing paresis of all extremities. Peripheral neuropathy that involves a single nerve, or that is not bilateral and symmetrical, or that does not involve first and predominantly the lower extremities is, in my experience, probably not due to vitamin B_1 deficiency alone. For such neuritides other etiologic agents should be sought.

The central neurologic manifestations of thiamin deficiency occur, as a rule, after peripheral polyneuropathy is evident, and forms a part of Wernicke's syndrome. The oculomotor palsies of this syndrome are believed to be due to vitamin B_1 deficiency.

The circulatory manifestations of vitamin B_1 deficiency do not form a rigid clinical picture (5–7). They may occur in a person whose circulatory system is otherwise normal, or they may be superimposed on one previously damaged by degenerative, hypertensive, or inflammatory disease. These circulatory manifestations, as observed by Weiss and Wilkins (8, 9), Jones and Sure (10), and in this clinic (7), may be classified as follows:

1. Edema and serous effusions occurring in the absence of congestive heart failure or recognized etiologic factors producing edema and serous effusions.
2. Edema and serous effusions occurring with supporting signs and symptoms of congestive heart failure, usually with definite roentgenographic evidence of cardiac enlargement.
3. Sudden circulatory collapse which may be the first manifestation of circulatory failure or may occur after other signs of circulatory failure are well advanced.

The circulatory manifestations of vitamin B_1 deficiency occur in about one-third of vitamin-deficient subjects manifesting definite polyneuropathy. They are more likely to occur in patients with suggestive or mild involvement than in those having advanced neuritis. This factor is related to the ability of persons with mild neuropathy to perform muscular exertion.

RIBOFLAVIN DEFICIENCY

Riboflavin is a necessary constituent in the diet of many animals. In the rat

its lack leads to failure in growth, to senility, alopecia, a nonspecific dermatitis and keratitis; in the dog an acute deficiency leads to spasticity, generalized weakness, circulatory collapse and a "yellow" liver, while a chronic partial deficiency results in signs characterized clinically by ataxia. Although riboflavin is presumably present in every living cell and is concerned with the chemical reactions involved in cell respiration, no distinct clinical syndrome in man had been attributed to its deficiency prior to Sebrell and Butler's (11) report.

The lesions produced by Sebrell and Butler in 10 of 18 women maintained with the diet of Goldberger and Tanner appeared 94 to 130 days after the beginning of the experiment. They began "as a pallor of the mucosa of the lip in the angles of the mouth without involvement of the buccal mucosa. This pallor was soon followed by maceration, and within a few days superficial transverse fissures appeared, usually bilateral, and exactly in the angle of the mouth. These fissures extended somewhat downward from the angle. . . . In some instances the fissures continued to extend onto the skin for a distance of as much as half an inch. These lesions resemble those described as *perlèche*. At about the time the fissures were seen, the lips became abnormally red along the line of closure. This was due apparently to a superficial denudation of the mucosa. In addition to the cheilosis, there was also seen a fine, scaly, slightly greasy desquamation on a mildly erythematous base in the nasolabial folds, on the *alae nasi*, in the vestibule of the nose and on the ears." Sydenstricker's (12) group has reported, in addition, a keratitis associated with these signs of riboflavin deficiency.

Jolliffe, Rosenblum and Fein (13) have reported 15 subjects having lesions due, we believe, to riboflavin deficiency. Thirteen of these subjects were alcoholic, one had advanced pulmonary and intestinal tuberculosis, and one was an epileptic. In this group of 15 patients, 13 had also nicotinic acid deficiency; 7, vitamin B_1 deficiency; and 3, vitamin C deficiency; while only one showed no clinical evidence of another vitamin deficiency. Since then, however, we have observed many subjects having a cheilosis which responded to treatment with synthetic riboflavin, who presented no clinical evidence of another deficiency disease. The facial lesions seen in the 15 cases reported consisted of filiform excrescences of a seborrheic nature, apparently derived from the sebaceous glands, varying in length up to 1 mm., closely to sparsely scattered over the skin of the face. Their characteristic location was in the nasolabial folds, but in addition they occurred frequently on the *alae nasi*, occasionally on the bridge of the nose, and sometimes on the forehead above the eyebrows. The skin on which the excrescences were located was the seat of a fine, scaly, greasy desquamation. On casual inspection these filiform lesions resembled urea frost, but they could not be brushed off by rubbing with the fingers. In addition, most of the patients showed fissures and maceration at the angles of the mouth, and a degenerative crustlike formation on the epithelium of the lips, most marked on the lower. The fissures at the angles of the mouth were bilateral and extended laterally 1 to 3 mm. onto the mucous membrane of the mouth and 1 to 10 mm. onto the skin. They were usually very shallow but sometimes were 0.5 mm. deep,

and their bases as a rule showed little or no increased redness. Extending for 5 to 20 mm. from the angle of the mouth onto both lips, the mucous membrane was macerated and wrinkled and pearl-gray. The lips, particularly the lower, frequently showed a marked increase in the vertical fissuring, often without a break in the mucous membrane. Occasionally the vestibule of the nose was involved with lesions similar to those on the lips.

By maintaining patients having these characteristic lesions of riboflavin deficiency on a control diet poor in the B complex, we demonstrated that these lesions respond to synthetic riboflavin, but not to thiamin chloride, nicotinic acid or pyridoxin (13).

NICOTINIC ACID DEFICIENCIES

The signs and symptoms of partial chronic nicotinic acid deficiency, particularly those occurring in pellagrins, are so well known from the work of Spies, Sydenstricker, and Smith and their coworkers that it is not necessary to describe them in detail. The complete picture consisting of a scarlet-red stomatitis and glossitis, diarrhea, bilateral symmetrical dermatitis and mental aberrations forms in combination such a characteristic syndrome that it is widely known and should never go unrecognized. It is not so well understood, however, that the oral lesions, the gastro-intestinal lesions, the mental changes or the skin lesions may each occur alone or in any possible combination. For example, the patients having the stomatitis of nicotinic acid deficiency are too frequently considered to have only the superimposed Vincent's infection. The primary diagnosis is not considered and specific therapy is neglected. If nicotinic acid therapy is instituted, not only is the scarlet-red stomatitis blanched within 24 to 48 hours, but the Vincent's infection heals without other general or local therapy. The mental changes may precede the skin, gastro-intestinal or oral changes, and the patient may be labeled as a neurasthenic, neurotic or psychoneurotic. Similarly, gastro-intestinal manifestations may precede all the others, and the diagnosis may be missed for many weeks.

Jolliffe, Bowman, Rosenblum and Fein (14) have reported 150 cases of an "encephalopathic syndrome," a condition heretofore almost always fatal, which is caused, it is believed, by nicotinic acid deficiency. This syndrome may occur as the only clinical manifestation of a deficiency disease or it may occur in association with pellagra, polyneuropathy due to vitamin B_1 deficiency, the oculomotor disturbances of a "central neuritis," or scurvy. The clinical picture of this encephalopathic syndrome is more or less well defined and is characterized by clouding of consciousness, cogwheel rigidities of the extremities, and uncontrollable grasping and sucking reflexes. The vigorous use of nicotinic acid has reduced the mortality in this syndrome from almost 100 per cent to about 15 per cent.

PYRIDOXIN

A specific syndrome in man attributable to a deficiency of vitamin B_6 or pyridoxin has not as yet been reported. In rats, a deficiency of this vitamin is known to cause "rat acrodynia," foci of degeneration in striated and cardiac muscle, and changes in the nervous system, particularly of the columns of the

spinal cord. Antopol and Schotland (15) have recently suggested that vitamin B_6, through its pyridine structure, may be involved in the enzyme system concerned in muscle metabolism. In this connection it is interesting to note that Spies, Ladisch, and Bean (16) have described a syndrome seen in 20 persons, characterized by "extreme nervousness, insomnia, irritability, abdominal pain and difficulty in walking" which disappeared dramatically following the intravenous administration of pyridoxin, but which could not be relieved with nicotinic acid, thiamin hydrochloride or riboflavin. Antopol and Schotland have reported the beneficial effect of pyridoxin on muscle strength in 6 patients having pseudohypertrophic muscular dystrophy, but warned that "it is not to be implied that this group of muscular dystrophies are due to avitaminosis B_6." In addition, we have accumulated evidence that vitamin B_6 plays some part in the acne syndrome.

Syndromes collectively labeled paralysis agitans, while not directly fatal, usually follow a progressive course, the victims eventually becoming helpless and seeking hospitalization. Since muscular rigidity and weakness is characteristic of paralysis agitans, and since vitamin B_6 is involved in muscle metabolism, it seemed worth while to test its effect in this syndrome. I therefore selected 15 patients having paralysis agitans, all of whom were bedfast or chairfast, 10 for more than three years, and administered to each one 50 or 100 mg. vitamin B_6 hydrochloride by intravenous injection, either daily or every other day. Of the 15 patients, four showed subjective and definite objective improvement. Two additional patients were subjectively improved. These results were reported on April 24, 1940 before the Minnesota State Medical Association. Similar results were later reported by Spies, Hightourr and Hubbard (17). Since then I have treated 40 ambulant patients having the paralysis agitans syndrome, with pyridoxin. Approximately 20 per cent showed definite objective improvement of dramatic proportions. Improvement of some degree was noted, however, in about two-thirds of the patients. It appears, therefore, that the syndrome of paralysis agitans includes a group of persons whose symptoms, particularly the rigidities and weakness, respond to pyridoxin.

REFERENCES

(1) Jolliffe, N.: The role of vitamin B_1 deficiency in the production of polyneuritis in the alcohol addict. Brit. J. Inebriety 36: 7 (July) 1938.

(2) Jolliffe, N., and Colbert, C. N.: The etiology of polyneuritis in the alcohol addict. J. A. M. A. 107: 642 (Aug.) 1936.

(3) Jolliffe, N., and Goodhart, R.: Effects of vitamin B (B_1) therapy on the polyneuritis of alcohol addicts. J. A. M. A. 110: 414 (Feb. 5) 1938.

(4) Williams, R. D., Mason, H. L., Wilder, R. M., and Smith, B. F.: Observations on induced vitamin B_1 deficiency in man. (in press)

(5) Goodhart, R., and Jolliffe, N.: Role of nutritional deficiencies in the production of cardiovascular disturbances in the alcohol addict. Am. Heart J. 15: 569 (May) 1938.

(6) Jolliffe, N., and Goodhart, R.: Beriberi in alcohol addicts. J. A. M. A. 111: 380 (July) 1938.

(7) Jolliffe, N., and Rosenblum, L. A.: Circulatory manifestations of vitamin deficiency. Diagnosis, treatment and prevention. M. Clin. North America 23: 759 (May) 1939.

(8) Weiss, S., and Wilkins, R. W.: The

nature of the cardiovascular disturbances in vitamin deficiency states. Tr. A. Am. Physicians 51: 341, 1936.

(9) WEISS, S., AND WILKINS, R. W.: The nature of the cardiovascular disturbances in nutritional deficiency states (beriberi). Ann. Int. Med. 11: 104, 1937.

(10) JONES, W. A., AND SURE, B.: The role of vitamin B_1 in cardiovascular diseases; preliminary report. J. Lab. and Clin. Med. 22: 991, 1937.

(11) SEBRELL, W. H., AND BUTLER, R. E.: Riboflavin deficiency in man; preliminary note. Pub. Health Rep. 53: 2282, 1938.

(12) KRUSE, H. D., SYDENSTRICKER, V. P., SEBRELL, W. H., AND CLECKLEY, H. M.: Ocular manifestations of ariboflavinosis. Pub. Health Rep. 55: 157 (Jan. 26) 1940.

(13) JOLLIFFE, N., FEIN, H. D., AND ROSENBLUM, L. A.: Riboflavin deficiency in man. New England J. Med. 221: 921 (Dec. 14) 1939.

(14) JOLLIFFE, N., BOWMAN, K. M., ROSENBLUM, L. A., AND FEIN, H. D.: Nicotinic acid deficiency encephalopathy, J. A. M. A. 114: 307 (Jan. 27) 1940.

(15) ANTOPOL, W., AND SCHOTLAND, C. E.: The use of vitamin B_6 in pseudohypertrophic muscular dystrophy. J. A. M. A. 114: 1058 (Mar. 23) 1940.

(16) SPIES, T. D., LADISCH, R. K., AND BEAN, W. B.: Vitamin B_6 (pyridoxin) deficiency in human beings. Further studies, with special emphasis on the urinary excretion of pyridoxin. J. A. M. A. 115: 839 (Sept. 7) 1940.

(17) SPIES, T. D., HIGHTOURR, D. P., AND HUBBARD, L. H.: Some recent advances in vitamin therapy. J. A. M. A. 115: 292 (July 27) 1940.

The Social Factors in Therapy

Every thoughtful physician is impelled, on occasion, to question whether therapeutic achievement may not interfere dangerously with those natural forces which, unobstructed in the past, have sustained the vigor of the race; whether his efforts to help the weak may not in the end create more weakness and, in sum, whether the ultimate social consequences of his labors will be socially beneficial or otherwise. These inquiries are odious; nevertheless they insistently are forced on our attention by conditions such as diabetes where bioplasmic inferiority is involved. Treatment for diabetes now is so satisfactory that the affected individual can be maintained on normal vigor for a span of years that may equal a normal lifetime. In this we take a natural pride; at the same time we must recognize that the ultimate result of improved treatment of this disease, as of many others, may in the long run be socially deleterious and that social advantage demands prevention more than treatment.—*Wilder, R. M., Clinical Diabetes Mellitus and Hyperinsulinism, p. 38, Philadelphia: W. B. Saunders Company, 1940.*

NUTRITION AND DEFENSE[1]

M. L. WILSON

Extension Service, U. S. Department of Agriculture, Washington, D. C.

THIS nation is now engaged in the great activity of national defense, united in spirit and in the belief that this great and serious activity is absolutely necessary if we are to maintain, preserve, and develop our democratic way of life in this troubled and turbulent world. To no small degree our peace depends upon the spirit and efficiency with which we develop this new national preparedness. Since the Advisory Commission to the Council of National Defense has been created, numerous activities have been going on in various fields related to our national defense. Many regular activities in the various departments of the federal government have been engaged in adjusting their programs to meet more fully the new national needs. It is fully recognized that all citizens and professional groups are deeply stirred by these events and activities. They are anxious to do their full share in a nationally coordinated effort for defense.

Modern defense and modern war involve the entire population and the whole economy of the nation. Since human nutrition is one of the vital elements in the lives of people, food and nutrition are therefore of great import in defense and in war activities. All of us who have vivid memories of the first World War know the part which food played, both during and after the War. It was natural, therefore, that when the Advisory Defense Commission was set up, proper consideration should be given to the problem of human nutrition.

In setting up the Advisory Commission on National Defense, the President asked Miss Harriet Elliott, at that time Dean of Women at the Woman's College of the University of North Carolina, to be responsible for the interests of consumers and for those activities which we commonly term health and welfare. Shortly after the appointment of the Defense Commission, Miss Elliott organized her activities on a functional basis, and placed Miss Gay Shepperson, who had had wide and successful administrative experience in the welfare field in the South, in charge of a section dealing with health and welfare. I had the honor of being asked to serve as an adviser in this section, dealing with problems of human nutrition.

I shall attempt to outline briefly some of the problems of nutrition in relation to defense as I see them. There are a great many things which ordinarily I should like to say about human nutrition, but I realize that there is no other professional association so highly specialized in all phases of nutritional matters as the American Dietetic Association. As an association you have given much thought to all aspects of what might be called "nutrition policies" and the administrative problems related thereto.

When the Defense Commission was set up, many people, remembering the situation in the first World War, may have

[1] Read before the Opening General Session, American Dietetic Association, New York, October 21, 1940.

anticipated a national food or nutrition administration, to be set up immediately, patterned somewhat after the Food Administration of 1917–18. I need not remind this group that we are not now at war and that the situation today is wholly different from that of twenty-three years ago. Furthermore, at this time, so far as I know, no one is thinking in terms of re-establishing what might be called a food or nutrition administration.

Much thought and study is being given in Miss Elliott's division of the Defense Commission to problems of human nutrition and the relation of these problems to other aspects of human welfare. Miss Elliott has well said, "All of us, whether or not we have specialized tasks, have a major defense job to do—the job of improving our standard of living, of keeping ourselves strong and physically fit.... The human welfare features of the national defense program are the responsibility of the Defense Commission and especially of the Consumer Protection Division. We have a particular concern with the problems of housing, nutrition, physical fitness, and social well-being wherever they may touch the problem of defense."

Miss Elliott is fully aware of the modern problem of nutrition. She has said, "Forty-five million of us are living below the safety line right now because we are not getting the kinds and amounts of food necessary for strength and health. *Hungry, undernourished people do not make for strong defense.* We have the lands, machines, and hands it takes to produce and move to market all the food we need to assure everyone an adequate and safe diet. Let's get to work and see that everyone gets at least that. Let's make America strong by making Americans stronger."

Two types of problem are being given consideration and study in Miss Elliott's division. The first of these I would designate as the specific problems in nutrition, growing out of specific defense activities. For example, will there be a nutrition problem in certain places such as shipyards and manufacturing towns, where there will be rapid expansion of the population due to new defense industries? These new, rapidly growing industries will draw families to new centers. Many of these will need housing and other facilities necessary to live in a decent, orderly manner. Will there be problems of food supplies and nutrition and other welfare matters in these new points of population concentration? Will the milk supply be adequate and plentiful? Will the supplies of the protective foods be available? Will the interests of nutrition be adequately considered by local and state councils of defense in areas and states where defense activities are going on?

I am sure that this type of problem is one which all dietitians understand and for which some machinery must be available so that unsatisfactory conditions do not develop. Just now contracts are being let for plants, houses are being built in many places, but the concentrations of population have hardly begun. I will not take the time to enumerate different kinds of specific problems in the field of human nutrition which grow out of particular situations in the defense program. These are now being studied and plans of procedure and forms of local cooperation are being developed. The definite plan is to make all possible use of existing local agencies.

The second type of problem is related to the broader and more fundamental problem of total defense and the place of nutrition in defense. This concept of total defense is not exactly new, yet I think it is fundamental. I need not elaborate and develop the point that war and defense activities now involve the whole economy and social structure of the nation. Again Miss Elliott has well said, "Battleships, tanks and planes—they are our first line of defense. But the sword is no stronger than the arm which wields it, nor the plane more useful than the hand and eye which guide it. Human defenses are as important as military defenses. . . . *Everyone has a job to do in a program of total national defense.* That job may be to build tanks or to serve in the armed forces; or it may be a job right at home, to make every family and every community strong. . . . Everything that makes for better living and a truer understanding of democracy is a vital part of defense. The spontaneous participation of free citizens everywhere in the defense program is a living illustration of the American way of life. That is democracy at work on defense."

Now you can see that this concept of total defense is one which involves human well-being. Nutrition, therefore, must be considered in relation to, and as part of a pattern in which there are a number of important elements. I shall return a little later to this problem of total defense and nutrition.

As stated before, the present situation with reference to food and nutrition is entirely different from that prevailing during the first World War. To me it is strikingly different in four respects.

First—Today there is plenty of food. As a matter of fact, the disturbance of the normal channels of commerce is again having a tendency to dam up the export food surpluses. A great deal of the trouble in agriculture for the last decade has been due to a changed international situation which prevented the normal flow of these surpluses to Europe. Now they are dammed up worse than ever. From the standpoint of agriculture, therefore, we have great surpluses of good food and our problem, from this angle, is one of wider and better distribution. We have the productive power in our agriculture to supply the adequate diets needed for all. In the first World War a principal function of the Food Administration was to economize on food. It established food quotas, regulations, developed recipes for the use of substitutes, etc. The slogan "Food Will Win the War" was a proper slogan for that period. However, Miss Elliott's statement, "Undernourished people are a liability in a defense program" is, by the same token, a proper characterization of our situation right now.

Second—There has been a great advance in the science of nutrition in the last two decades. Now that our knowledge of the vitamins, the minerals, etc., is so much more exact, there is a better basis for formulating the principles of human nutrition and for the statement that the efficiency, the spontaneity, the ability to work, the endurance of muscle and keenness of nerve are directly related to proper diet. Surgeon General Parran of the U. S. Public Health Service has well said that even though we have these great accomplishments in nutrition, we stand in nutrition about where bacteriology stood when the technique had been developed for isolating organisms and producing antitoxins. The growth of

science in this field of nutrition has been great and far-reaching. Even so, it has not been so spectacular and it has not, therefore, impressed the public mind as have the developments in airplanes, tanks, and the munitions of war. I think that the great majority of citizens are yet to realize the full import of good nutrition. Somehow or some way, as a nation, we have to adjust our food habits and our diets to this new scientific foundation for diet. This adjustment, even though it takes a long time to filter through the entire population, is going ahead at a rapid rate and dietitians are giving great impetus to the change. I do not believe that anyone leaves a hospital now without having been made at least a little conscious of the science of nutrition and the relation of proper foods to health.

Third—There is a vast army of professional people now engaged in the field of human nutrition, people whose training has varied from courses in nutrition and foods in normal schools, to those who have taken their doctor's degree in this subject. This group is widely diffused throughout the population, and some of them are in almost every community. For instance, I am informed that there are nearly 5000 members in your Association which represents the scientific, practicing dietitians throughout the country. I imagine there are a great many more practicing dietitians who are not members of the Association. There are also more than 17,000 members of the American Home Economics Association, all of whom are more or less skilled in nutritional science.

I would not attempt here to give a complete inventory of this great group of people who will be so important in connection with expanding national nutritional activities. There is the American Institute of Nutrition, composed of the research scientists in the field. There are the various medical associations, local, state, and national; the welfare associations with their experts in food, the trade and commercial food groups which employ home economists and nutritionists, the milk industries, and the food page writers for the daily press and journals.

In the field of government—municipal, county, state, and national—there is also a large number of competent, technically trained people devoting full or part time to matters relating to foods and nutrition. High school courses in foods and nutrition, assisted by federal vocational funds, are being given in 7427 schools with 439,877 pupils enrolled. Instruction is given in these schools by 7427 teachers. Classes for adults, in which home economics is taught and foods are discussed, are being given in 3559 centers in the country, with an enrollment of 236,000 adults. A rough estimate indicates that there are at least 25,000 school teachers in the United States who have had some training in foods and who are giving instruction in foods and nutrition.

In the field of extension and home economics in agriculture, involving as it does cooperation between the United States Department of Agriculture and the Land-Grant colleges, there are over 2000 county home demonstration agents. There is also a state extension nutrition specialist in practically every state, and in some states, more than one. In addition, there are about 2000 home supervisors in the Farm Security Administration who are working with low-income

families in agriculture. There are also nutritionists and nutrition programs in the public health and welfare departments in most of the states. Many state, county, and city health departments have full-time nutritionists. Nutrition is given its proper place in child welfare work wherever it is carried on. Likewise, a number of nutritionists are employed in connection with the school lunch program of the WPA, and in various activities of the Social Security and Youth Administrations.

The import of all this is that we now have a large body of competent, capable people in the public service and in non-public agencies, who are working in the field of food use and nutrition. Likewise, a large number of governmental agencies on the federal, state, and county level, are directly concerned with the nutritional status of the people. An important problem, then, in so-called total defense is to stimulate all these people to maximize their activities in their particular fields and stations in the community and to help them integrate their work. They should be encouraged to contribute all they can to the development of a better and widespread understanding of the principles of nutrition and to assist in planning improvement in the nutritional status of their communities.

Fourth—Scientific knowledge is rapidly accumulating as to the nutritional status of the people as a whole and in different sections of the country, at different levels of income, and among different groups. There is scientific basis for the common estimate that 45 million people—more than a third of our population—are improperly nourished. We need to instil in the public the idea that people may not be starving to death yet may be improperly nourished. Numerous surveys of the nutritional status of adults and school children, particularly those made by Dr. Stiebeling of the Department of Agriculture, indicate this. We now know a great deal about the nature of the diets in common use and the dietary deficiencies of groups and classes of people in the population. We know that these insufficient diets are due either to lack of income with which to buy the proper foods or to bad food habits and lack of knowledge of nutritional principles.

Let me repeat a little incident which happened last week as an illustration of what I think is in your minds and what I believe is in the minds of a great group of people who are awake to the modern science of nutrition, to the great deficiencies in our diet, and to the effects of these deficiencies upon the health and welfare of our population. I was talking with a research professor of human nutrition in the agricultural experiment station of one of the Land-Grant colleges of the southern states. She said, "We have made a survey of the diets of thousands of school children. The facts in the situation are very distressing. What are we going to do about it? I think we need action some way or somehow."

This is a very fair question for each one of us to ask ourselves, our communities, and the government—local, state, and national.

May I pass on some suggestions which I would give in answer to this question?

Let me repeat that while this problem of nutrition has existed for a long time, its vital importance is just being recog-

nized. Total defense to be effective demands maximum physical and mental fitness. The nutritional implications of this demand for maximum physical fitness and mental alertness are tremendous. Miss Elliott considers this problem of nutrition as fundamental in a total defense program. She has well said that defense now is not only a matter of planes and tanks and artillery; it is total defense—the efficient functioning of the entire population. Many requests are being received in Washington from groups all over the country who seek information as to what they can do to help raise the dietary standards in their localities. The nation is ready to tackle the problem of nutrition.

Since proper diet is an essential part of the present defense effort, the Defense Commission has an important share of the responsibility for coordinating and sponsoring nutritional activities on a national scale and integrating such activities with the total defense program. A great deal of thought and study is being given by Miss Shepperson's staff to this responsibility. Miss Shepperson believes that as far as possible, whatever is done as a defense activity should be done through existing organizations with a maximum amount of local responsibility and local initiative. She believes it should be done in a way to build up the existing personnel and existing institutions rather than to set up new ones, which would be temporary in character and might create problems of demobilization when the emergency was over.

Nearly everyone who is acquainted with the problem comments that some way, or somehow, a better means of coordinating existing agencies is needed to secure a more effective program of human nutrition in the United States. Those who are familiar with the various agencies, I believe, realize that all of them are doing excellent work in harmonious relationship with one another. The suggestion of coordination, therefore, does not imply a criticism of any agency or its personnel, but rather the idea that if the agencies were a little closer to each other and if they viewed the problem as a whole, two things could happen:

First, each agency would see its functions and duties a little more clearly in relation to the whole; and second, all agencies and people, both public and private, would be able to fit into a state and community nutrition program with the feeling that they were consciously a part of it. Coordinators are not very popular people, and I think that government experience indicates that wherever possible it is better to try to let people coordinate one another through cooperative activity.

As a first step in this direction there has developed over the last several years in most of the United States, a process of bringing together the various people in charge of publicly sponsored programs of education and service in relation to nutrition. In New York, for instance, for several years there has been a state nutrition committee made up of the head of the Department of Home Economics at the College of Agriculture and Home Economics, Cornell University; the extension specialist in nutrition; the head of research in nutrition at the agricultural experiment station; the nutritionists in the state health department, in the public welfare department, in the

state department of education, and several other state departments. In other words, this is a kind of cooperative, coordinating committee of technical people in the field of nutrition who represent the various public agencies in New York concerned with this field. This committee has sponsored two state conferences to which they have invited other workers in the field of nutrition. They have discussed all angles of the nutrition problem in the state of New York, and whether or not they have called it such, I am certain that their activity has gone a long way toward the development of a nutrition program in New York. Such committees are in existence in most, if not all, of the states of the Union. These committees can, if they are so inclined, be of great service in coordinating nutrition activities on the state level. They can be the instruments through which, in cooperation with the state council of defense, such defense activities as may later seem advisable can be carried out effectively, cooperatively, and in keeping with the spirit and situation of particular states.

These committees can be of great assistance in giving technical advice relative to many problems within a state involving nutritional and dietary science. Mr. Milo Perkins, president of the Federal Surplus Commodities Corporation of the Department of Agriculture, which carries on the so-called Stamp Plan of food distribution to low-income people, is seeking advice from these committees regarding some policy matters in particular states with reference to surplus foods, and specifically with regard to certain problems arising from supplying surplus commodities for use in the WPA school lunch program. These are just two ways in which many of the state committees are functioning at the present time.

In a democracy action is not generally taken until there is widespread understanding and acceptance of specific problems and proposals. We therefore need to make the American people nutrition-conscious in terms of the nutritional science of today. If the great mass of the people could be brought to understand the relatively simple, basic principles of the modern science of nutrition and to understand the deficiencies—the unsatisfactory nutritional status of 45 million of the population and the relationship of this to the health and welfare of the nation—action plans to improve this situation could be developed rapidly and could be carried out with generally popular and democratic support.

I am confident that results would be forthcoming if we considered nutrition as a national problem, as we consider housing, unemployment, old age, economic balance, etc. The 5000 members of this Association can be a powerful force in developing this new national nutrition consciousness. I like to think of dietitians as being much more than directors of institutional kitchens and prescribers of diets for sick people. I like to think of you more as practitioners of the science of nutrition outside of the home in much the same way that physicians and surgeons are practitioners of the healing arts and sciences dealing with disease and health. If each one of you in this Association could take it upon yourself to become an educational missionary, and could, within the limits of your time and strength, contribute to this broader enterprise of

developing a new public attitude toward nutrition, you would be rendering a patriotic service to your country. You would really be enlisted in the cause of total defense as it has been defined by Miss Elliott.

Much thought is being given by leaders in and outside of government service to this problem of the new national nutrition consciousness. I am hopeful that out of the thinking and discussing process that is now going on something can be worked out which will embrace existing agencies and institutions, both public and private, and the great army of trained and skillful workers in nutrition, in making a new nutrition consciousness a reality. If we really made up our minds to bring the dietary standard of the American people up to a fairly reasonable level, it would mean not only an attack on the problem through the educational and research processes, but also important modifications in our policies pertaining to agriculture, agricultural adjustment, food surpluses, marketing, and food standards. In other words, this new nutrition consciousness would involve a lot of changes from our present situation, none of which, in my judgment, would be inconsistent with the social and economic arrangements under which we live.

Many activities now under way are moving in this direction. For example, the Food Stamp Plan, which will assist five million low-income people by the first of the year, and the WPA school lunch program which is operating in 11,000 schools and reaching six million children, are of very great significance. I hope that we can find better ways for milk distribution so that more milk can be added to the diets of children particularly in low-income families. I hope that there can be better food and home living practices on the farms of the country and that there can be a revival, where practicable, of community gardens through which low-income people, particularly in villages and small towns, can be given the opportunity of again raising much of the food they eat. It does not require a great deal of imagination to see that there is a need to do something immediately effective about the 45 million who have unsatisfactory diets.

In conclusion, let me say that Miss Elliott and the members of her staff and her advisers are studying the defense angle of this problem very thoroughly. They are appreciative of the many fine suggestions submitted to them by interested citizens and organizations such as the American Dietetic Association. There are many problems involved in so-called total defense, but after all, the responsibility for the problem of nutrition lies largely with the people in the communities, in the counties, and in the states. I feel certain that there are some things which can and must be done as a defense activity, but the Defense Commission is only a temporary organization. We need to plan and build carefully for permanent gains which will remain after the present emergency is past.

Let me repeat, it is recognized that the status of national nutrition, good or bad, in ordinary times is one thing. But in defense and national emergency, it is quite another. Therefore it is important now to raise the nutritional status of the nation as rapidly as possible and

to as high a level as possible. This means that during the present defense activity human efficiency and productiveness will be consistent with the spirit of this serious and important national enterprise.

But this is not all. The human resources of the nation must be maintained in a high degree of reserve status, so to speak, so that it can give its best if called upon in time of emergency and national crisis. If this nation should be forced into war, then every man, woman, and child in the United States should be prepared by being in the best physical and mental condition that the science of nutrition can develop and maintain. It is therefore just as important a defense activity to attain this new national nutritional level as it is to train troops.

Let me close by again quoting Miss Elliott: "Hungry, undernourished people do not make for strong defense .... Let's make America strong by making Americans stronger."

.... Soil Conservation ....

FOOD IS AN ESSENTIAL requirement of every living thing; you and I and every human being must have it. And almost all of it must come from the soil. Yet in this country we have shown an amazing disregard for our soil resources. We have permitted an almost incredible waste. In effect, the people and the soil have been fighting with each other. People have been trying to get as much out of the soil as possible, without giving it much care in return; and the soil has reacted against the whole exploitative process. Unless we can put a stop to this needless fight and make up the differences, we are going to find ourselves in serious trouble as a nation and as individuals.

From an original average depth of about nine inches, topsoil in the United States has been whittled down to a depth of only about five or six inches—on the average. Over thousands of acres, however, all the topsoil has been wasted, leaving only the raw, sterile subsoil. It is only by a long process of weathering that this subsoil material becomes real soil—topsoil. As a matter of fact, it takes nature from 200 to 1000 years or more to build an inch of topsoil. Yet it is from these few inches of topsoil that we get our food. Moreover, the quality of our food depends to a considerable degree on the quality of that topsoil. Food produced on soil lacking in essential minerals and other necessary elements in all probability will not be food of Grade-A quality and benefit to the consumer. Not enough is known about this point, but the indications seem clear....

To summarize what I have been saying, there is not now enough good, erosion-free land in the country to support the nation at what we recognize as a desirable standard of living. If we continue in the future as we have in the past we will come inescapably to an agricultural skim milk condition, insofar as our land is concerned. That we should permit such an eventuality, in view of world conditions, is unthinkable. The food supply of the United States in the future depends on the conservation and wise use of our topsoil, and consequently I believe the soil conservation movement will be intensified in the years ahead.—*Bennett, H. H., Chief, Soil Conservation Service, U. S. Dept. of Agric., Soil conservation—a major factor in future food production. Presented before the Conference on Science and the Nation's Food, Wellesley College, October 25, 1940.*

THE RED CROSS PROGRAM IN RELATION TO NATIONAL DEFENSE[1]

MELVA B. BAKKIE

American Red Cross Headquarters, Washington, D. C.

THE threat from without makes Americans more aware of the threat from within due to malnutrition and undernutrition. We see clearly that guns, planes, tanks and ships are not the only tools needed to make our national defense effort effective. We must prepare physically and mentally to make our nation secure.

Since the days of 1917, the American Red Cross has developed and improved a program which is designed as a defensive preparation against preventable human suffering. Thousands of people trained in feeding the family, emergency canteen service, home care of the sick, first aid and accident prevention are vital resources which are of permanent value in peace-time and effectively carry over into modern defense efforts. These educational activities now must be stepped up and expanded in a cooperative effort to build national strength.

The value of disaster preparedness set-ups has often been proved. The resources of the American Dietetic Association are needed to improve these defense measures in each of the 3700 Red Cross Chapters. Dietitians and nutritionists are needed on food and canteen service committees and elsewhere in setting and adapting standards of relief to disaster sufferers. Assistance is needed in training women volunteers in practical emergency feeding, particularly in those areas subject to disasters such as explosions, fires and floods. More families must be reached through food and nutrition discussion groups.

Certain complications will arise from the social and economic dislocations of the family group, due to the establishment and speeding up of defense industries and the expansion of the armed forces.

The Army and Navy look to the Red Cross as the coordinating agency in meeting welfare problems growing out of these dislocations. Congress has placed upon the home service section of Red Cross Chapters the responsibility of arranging relief provisions and other assistance for the dependents or families of members of the defense forces of the nation.

From the Army and Navy stations or hospitals, cases requiring united community action will be referred to Red Cross Chapters. Medical authorities in military organizations will wish to prevent worry and other mental strain which may be caused by home situations. Mental distractions may imperil the lives of men in military operations requiring great skill in handling intricate apparatus such as aircraft, submarines and other defense equipment.

Draft boards may soon reveal large percentages of men incapable of military service. The Red Cross is considering the possibility of cooperating in community efforts to alleviate malnutrition.

Dietitians and nutritionists are local resources which chapters will be expected and urged to utilize in efforts to

[1] Read before the Session on Preparedness for Defense, American Dietetic Association, New York, October 23, 1940.

improve home service programs designed to meet human needs among service personnel and their families.

Early in 1940 the Surgeon General of the Army asked the Red Cross to step-up its peace-time service for the military forces by expanding the old reserve of enrolled dietitians which was continued from the first World War.

Beginning in 1917 all home economists, equipped to be of service in matters relating to food, were enrolled with the Red Cross under the classification of dietitian and dietitian instructor. From this reserve, assignments were made to Army and Navy, U. S. Public Health Service, and civilian hospitals. The reserve was also utilized for emergency work under the Red Cross as instructors in food conservation, large quantity cooking, child welfare work, relief work and the Red Cross Commission overseas.

In expanding the old reserve, changes in requirements and qualifications were set up. An age limit of 45 was imposed. Members enrolling were to be free from what the Army apparently regards as a handicap, a husband.

Professional qualifications call for a B.A. or B.S. degree in home economics with a major in dietetics and the completion of an accredited training course in hospital dietetics or its equivalent, two years of experience.

The responsibilities and duties of the dietitian in the Army will vary. For instance, in some of the large Army hospitals, the dietitian is responsible to the mess officer for the entire food service to patients. In field hospitals, most of the work will be largely administrative and supervisory. In time of emergencies, special diet cases are usually sent to general hospitals.

In view of the administrative capacity in which the dietitian may be expected to function, it may be advisable to interpret less rigidly the requirements with regard to training and experience as set up at present.

The Red Cross is continuing the listing of dietitians who enrolled prior to 1940 and who have expressed a desire to be of service even though they have passed the present age limit.

Granted the status of the dietitian in Army service is not entirely satisfactory, the response to enrollment reaffirms the loyalty of the dietitian to her country and gives her an opportunity to build on the gains made by other dietitians during and following the first World War.

Should the Red Cross be unable to meet the first call for dietitians by the War Department, the small number available at present might be taken as an indication of lack of interest and patriotism. Lack of response might adversely affect reconsideration of the Sheppard Bill, and medical units might be formed without dietitians. When called for duty with the Medical Department of the Army or Red Cross, the acceptance of an assignment, it should be noted, is purely voluntary.

In the event of war, dietitians on the Red Cross reserve will be given a civil service classification. If sickness or disability is incurred while in service, the dietitian will be entitled to compensation under the Federal Employees Compensation Act of 1916.

Here is the present status of the enrollment of dietitians:

September 30, 1940—99 women and 1 man enrolled

September 30, 1940 — applications pending—12 women, 1 man

Up to October 18, and following the letter of the President of the American Dietetic Association, Mrs. Beula Becker Marble, to the membership concerning enrollment, 195 requests for information and application blanks were received.

Thirty-five have been rejected for the following reasons: education—training —experience; past age limit; already in Army hospital; physical condition (4); husbands; and not a United States citizen.

The salary of the Army dietitian is $1620. Out of this $180 is deducted for quarters and laundry and 60 cents a day for board, leaving about $102 per month clear.

Several dietitians will soon be called from the reserve for Red Cross duty with the Red Cross-Harvard Medical Unit to be established in England in December, with Dr. John E. Gordon, Harvard Medical School, as director. The hospital is to be used for the treatment and study of communicable diseases under wartime conditions. The hospital will be constructed, financed and staffed by the Red Cross. Twenty physicians, one or two dietitians, and fifty nurses will make up the personnel for this 100-bed unit. In setting up the equipment for this hospital unit, national headquarters received the invaluable assistance of Mame Porter, nutritionist, Department of Social Welfare, New York State; and Grace Bulman, chief, Dietary Department, Veterans Administration, Washington.

In all these developments in the American Red Cross in relation to national defense, there is a real challenge and opportunity for the dietitian and nutritionist to offer their services in building strong Americans. Red Cross Chapters may not always know what to expect from a dietitian and a nutritionist. They need your guidance in an interpretation of your services so that they can make the most effective use of your offers of assistance.

We know that certain sciences will be fully applied to instruments which destroy lives. In the American Red Cross, dietitians and nutritionists will find an opportunity to apply the science of nutrition in building national strength through saving and improving lives.

Vitamin B_1 in the Diet

Give very careful attention to sources of vitamin B_1 in the diet. It is more difficult to obtain an adequate amount of this vitamin than any of the others. It is probably the one in which American diets are most deficient. Take special care to conserve the vitamin B_1 in foods during cooking. Many of the foods that contain an abundance of vitamin B_1 are cooked before being eaten and next to vitamin C, vitamin B_1 is the vitamin most likely to be lost when foods are cooked or canned. The precautions necessary to conserve vitamin B_1 will conserve other vitamins as well.—*Munsell, H. E., Vitamins and their occurrence in foods, The Milbank Memorial Fund Quarterly, October, 1940.*

FOOD CONTROL THROUGH RECIPES[1]

BERTHA E. NETTLETON

Institution Kitchen, General Foods Consumer Service Department

THE backbone of food cost and portion control lies in the recipe. Of course intelligent buying of raw food will ensure the quality best suited to service at the lowest market price. But all of you here know that, important as this is, careful buying is only the first step toward attaining service of the finest quality food possible within the limits of a food budget.

Here is where the standardized recipe helps to solve the administrative dietitian's problem, for a standardized recipe is accurate. It can be depended upon to yield a definite number of portions of a given size every time it is used. When such reliable recipes are used every day for every service the exact food cost of every item is readily available. And when the expenditure for any food or group of foods is out of line, the cause can be traced to its source through these recipes. The dishes that are responsible can be adjusted to cost less, they can be served less frequently, or they can be dropped altogether, as necessary.

This type of detailed control was not possible when the chef or head cook was in charge of the kitchen. Recipes were their property and, for the most part, were carried in their heads, making any control practically impossible. As the duties of the dietitian have come to include more of the administrative functions this situation has changed. The production manager is demonstrating that rigid control of the food and service results in better food service at a lower cost per patient or other guest.

STANDARDIZING RECIPES

The standardized recipe is recognized more and more generally as an essential part of the equipment necessary to successful food service. Such a recipe should be so accurately proportioned that a uniformly satisfactory product can be obtained every time it is followed, regardless of the cook using it. Please note I said *followed*, for no recipe can possibly be proof against the inaccuracies of careless workers.

To attain the desired goal of a standardized recipe for every service on the menu—one which gives yield and service directions as well as ingredient proportions and directions for combining and cooking—accurate preliminary work must be done. Every dish and service must be tested and checked until the proportions and service directions are such that, regardless of the cook, the dish is readily recognized. Such recipes do not do away with the need for skilled workers. A cook still has ample opportunity to express his individual skill. It will show itself through the plus-quality in blend of flavors, the finish of the servings, and in many little refinements difficult to explain but which everywhere show the difference between the skilled worker's touch and the unskilled or inept hand.

A complete file of standardized recipes for your service may involve a long series of checks and rechecks on recipes and

[1] Read before the Session on Food Cost Control, American Dietetic Association, New York, October 23, 1940.

serving directions for every item to be served.

These recipes may be developed from those which have been in use and found to be more or less satisfactory, from those taken from cook books, or other outside sources, or from successful home-sized recipes. In any case, each recipe must be tested and retested until proportions, seasoning, and manipulation give a product of the desired quality and of the number and size portions suited to the service. To illustrate the work that is involved in developing a recipe to a given size, I am going to outline the procedure we use.

A SUCCESSFUL METHOD

In our laboratory we translate the dry ingredients into weighed units before we begin to work, because when making a large unit for an institution menu, the use of scales is a time saver as well as an aid to more uniform quality, regardless of who is making the dish. We work in small units (about twice the amount of a home-sized recipe) when we begin our experimentation to develop a recipe, using gram scales for amounts too small to weigh on kitchen scales. Each recipe is carefully tested and judged. Then it is made again, incorporating the changes that seem necessary to give it the desired characteristics. A record of the yield is kept each time the dish is made so that when the product is finally considered satisfactory, it is easy, by simple multiplication, to put it into a unit that will yield the number and size of portions required.

After the recipe has been put into final form further tests are made, first, to check this new recipe for any possible errors made in multiplying to the larger yield; second, to make sure the expected yield is obtained; and third, to learn if an equally satisfactory result can be obtained when the dish is made by workers other than the one who developed the recipe. No recipe is complete until all of these checks are satisfied. For much good material can be wasted if recipes yield more portions than the number necessary or if the expected quality is not obtained every time the dish is made.

It has been our experience that after the experimental recipe has been developed to give a quality satisfactory when made by two or more different people, it can be multiplied successfully to any reasonable size. Failures are caused by inaccuracies in the small recipe which seem to become exaggerated when multiplied, not by the mere act of multiplying each ingredient by 10 or 100 and the mixing of the larger mass. If the small unit is mixed by hand, and the large unit by machine, the timing may need to be changed. But if mixed in a small institution-type mixer and transferred to a larger machine of the same type, the timing will be the same. Cooking directions for very large units which are cooked on top of the stove may have to be timed differently from those for the smaller amount. But cooking in steam jacket kettles is often quicker than top stove or double-boiler cooking of small units. All such factors must, of course, be considered.

RECIPE FORMS AND USE

The form in which these recipes are set up is important, too. Choose a style that is adapted to all the types of recipes used in the meal service, yet one that is easily interpreted by the workers so that every recipe can be made with the mini-

mum of effort. This standardized form should provide the list of ingredients, directions for combining, for cooking, for serving; it should give sizes of containers to use, yield, and a form of service adapted to the needs of the institution.

A safeguard well worth the extra work involved consists in putting each size recipe unit on a separate card. For example, if the service requires 20 cake layers today and 24 the next time the recipe is used, have the recipe for 20 layers on one card and that for 24 layers on another. A worker cannot then make the mistake of taking amounts of sugar from one column and butter from another, which could very easily happen when two or more units of the recipe are on the same card and there are interruptions while the measuring is being done.

Then, in addition to the yields and service information on the recipe itself, there should be special service directions for the serving maids, and details concerning the serving equipment which will ensure correct and uniformly sized portions. There are many excellent recipe forms which can be used as a guide in selecting the one best suited to your needs.

A recipe service such as this is of inestimable worth. Much ground work is necessary to establish it and if its full value is realized, it can never be allowed to become static. Instead, frequent checking and revision of recipes will be necessary, as ideas and standards change. One of the home economists at the American Home Economics Association convention, in presenting a report on a series of cake tests, said that the standard of the testers was raised during the period over which the series of tests was run. That is a healthy condition and one which grows wherever there are alert food supervisors. The standard that is satisfactory today may not be so six months or a year from now.

Mixtures of Vitamins

There are a great many types of vitamin mixtures available to both the physician and the layman. Some of these are simple combinations in various proportions of synthetic vitamins, while others are concentrates of naturally occurring substances. Because of the wide variation in composition of these various preparations, no statement can be made which will cover all cases. In general, however, it seems wisest to recommend their use for the fortification of an otherwise slightly inadequate diet rather than to suggest their application to the therapy of serious clinical deficiency diseases. Most of them do specify, and all should specify, the exact potency of each constituent. On this basis alone can judgment be passed as to their efficacy under varying circumstances.—*Gordon, E. S. and Sevringhaus, E. L.: Vitamin Therapy in General Practice, p. 245, Chicago: The Year Book Publishers, Inc., 1940.*

THE PLACE OF SCIENCE IN MODERN BAKING[1]

WILLIAM H. CATHCART

Research Department, American Institute of Baking, Chicago

SINCE the first loaf of yeast-leavened bread was made, baking has been considered an art. In days long past evil spirits were blamed for anything that might have gone wrong in the dough batch. Today, however, when something unusual occurs, even the smallest baker is beginning to investigate his dough processes, the quality of his ingredients, and other controllable factors.

SCIENTISTS' EARLY INTEREST

Eighteenth century chemists, who first began to study French bakery methods and conditions, were pioneers in the field of applied chemistry. Nearly 175 years ago, Malouin published a work on the value of science and its methods for the improvement of baking. C. B. Morison (1) has given a brief review of this early work in the application of chemistry to baking. He points out that Malouin's material served as a basis for a publication by Parmentier in 1778, and says, "Parmentier was the original advocate of technical education for bakers, and his influence led to the foundation of the school of baking in Paris, which was destroyed in the midst of a flourishing career by the French Revolutionists who had no need for chemists and sent Lavoisier to the guillotine."

As Morison mentions, the next work of note was published by Dumas in 1843. In this article Dumas brought chemistry as applied to baking up to date, and included some of his own investigations. One of the most revolutionary conclusions he drew was that the most satisfactory way to determine the baking value of flour was by carefully controlled baking tests. This is the consensus of cereal chemists today.

Thus, the chemist's interest in baking is not new, yet only recently have bakers generally appreciated the value of chemistry. Perhaps the recent interest of the baker in the chemist is motivated by economics, for in these days of large scale production and highly competitive markets, the chemist is absolutely necessary to control ingredients, processes, and products so that economy and uniformity of production can be maintained.

Yet the baking industry was the last branch of the fermentation industries to institute a systematic, scientific study of materials used and processes which take place during manufacture. In the last twenty-five years the baking industry has speeded up and matched the present acceleration in the rate of progress in methods of food production. This is due largely to the adoption of the scientific method of experimentation. Not that all art has been replaced; art still remains but is merged with science.

Today, many of the large bakeries of this country have their own laboratories. For those whose volume of business is not large enough to support laboratories of their own, there is a need for a laboratory, either commercial or otherwise,

[1] Read before a conference of dietitians, sponsored by the Illinois, Indiana and Wisconsin Dietetic Associations, in conjunction with the Tri-State Hospital Assembly, Chicago, May 1, 1940.

where a baker can have his problems solved, whether it be a simple routine analysis or a problem of research. Today many such laboratories exist.

The work of the scientist in the baking industry can be divided into two fields: development of new improved ingredients, processes, products, etc.; and quality control work.

INGREDIENTS, PROCESSES, AND PRODUCTS

The work of the research and development scientist has encouraged the baker to use new and improved ingredients. Satisfactory results have been so numerous in this field that it is impossible to enumerate all of them. However, the most important developments in ingredients will be discussed briefly.

Flour has been standardized, improved, and methods for its evaluation have been worked out. The ash, protein, moisture, etc., in flour have been studied in an attempt to learn their relationship to flour quality. The chemist has not only been satisfied with studying quantities, but especially in the case of protein, of determining quality. Special mechanical devices as a result of our knowledge of modern physical and colloidal chemistry are now available to determine the elasticity and strength of a protein when it is worked up into a dough. Other machines determine the gas-retaining properties of the protein when used in a dough and tests have been devised for measuring the diastatic activity or gassing power of flour, and its proteolytic activity.

The modern use of the combine in harvesting wheat has resulted in flours with lower diastatic activity. This is a good example of how an advancement in one part of an industry may affect the rest of the industry.

As a result of the above developments, it is possible for mills to standardize and control their flour accurately. The ash and moisture contents and the amount of protein and its quality are controlled. The diastatic and the proteolytic activity are adjusted, the former by the proper selection of wheat and addition of malted wheat, the latter by adding maturing agents. In the case of cake flour, granulation, acidity, and liquid-carrying capacity in addition to moisture, ash and protein are strictly controlled.

Standardized dried and evaporated milks of a high degree of purity are available to the baker. This is not enough, however, since further treatment is necessary in order that the milk may have proper baking qualities. The scientist is giving the baker the best kind of milk.

Standardized malt extracts containing diastatic enzymes are available so that the baker if necessary can increase the diastatic activity of his dough.

Today the scientist gives the baker a uniformly standardized source of yeast. This alone is an important factor in the progress of the industry. Before the development of modern compressed yeast, the baker could never be sure of its purity or strength. Salt and sugar do not need any special preliminary treatment, but it was the scientist who made them available in a high state of purity at a relatively small cost.

Developments in the shortening industry have been no less astonishing than in the case of flour. What had been useless vegetable oils, as far as the baker is concerned, have been turned into

semi-solid plastic shortening by the process of hydrogenation. For the cake baker, hydrogenated shortenings are now available which are greatly superior to any natural mixtures of fat. The modern cake calls for a shortening with high emulsifying properties. Here again the scientist has given the baker what he needs. Modern shortenings are standardized and consistent from day to day.

New baking powders have also made their appearance. Many of the newer types are called "slow-acting." Little of the carbon dioxide is released before the product reaches the oven. This has made it possible to develop new type baking powder leavened products, of improved quality. These, together with refrigeration, have made it possible for the small baker to give his customers fresher products, which he can bake as he needs them.

By the development of frozen eggs, science today has made it possible for the baker to use the highest quality eggs. Eggs frozen while fresh will retain their high quality for a lengthy period as long as they remain frozen. Frozen eggs were among our first frozen foods, and the efficiency of freezing as a method of food preservation has been well demonstrated.

Besides the above, other pure food ingredients are available which apparently improve the texture, grain, and other properties of the baker's products. The scientist has also given the baker ingredients (containing calcium salts and generally phosphates), which increase the activity of yeast, condition the dough, correct a soft water supply, and help control the proteolytic activity of dough.

The fermentation of dough is a complex physical, chemical, and biological process of which, thanks to the chemist, the baker now has a better understanding. The failure to control fermentative conditions undoubtedly is responsible for many of the difficulties which confront the baker. Scientific methods for the determination of the time of fermentation, make-up, proofing, etc., are not yet available, although some research points in this direction.

New methods of manufacture, that is, new processes and new products, have been worked out by the practical baker and also by the scientist. It is believed that both share equally in the development of new processes and new products.

Many food industries have a problem in determining just how their products should be packaged. This is true of the baking industry, although the problem is not so important here as with other industries. Moisture-proof wrappers which will allow certain volatile constituents to pass through, wrapping materials which will not absorb fat, and others which will delay rancidity, are available.

QUALITY CONTROL

The baker's laboratory, whether it be in his plant or in a general laboratory where he sends many of his ingredients and products, acts as a quality control measure. The first job of the quality control laboratory, of course, is to check the baker's ingredients and see that they are up to standard. The most common test method is to use the ingredient in a baked product for which it is intended.

Since wheat flour is one of the most important ingredients in baking, the

determination of its baking value is one of the main ingredient control problems of the chemist. Uniform and accurate methods for the determination of moisture, ash and protein in flour have resulted from a continued critical study by the Association of Official Agricultural Chemists (2), and the American Association of Cereal Chemists (3). However, the determination of the baking quality of flour is another problem, and in concurrence with Dumas' opinion, this is generally done by means of a baking test, with the flour actually baked into the product for which it is to be used and the quality of the finished product then determined. Besides this, mechanical tests, etc., must be made. Thus it becomes obvious that men in the laboratory must be more than chemists —they must be baking technologists.

The food manufacturer in general is dealing with substances that are complex biological mixtures. Many of them change from season to season. This is definitely true of flour, and the miller, the quality control chemist, and the baker must be extremely alert to the adjustment and handling of flours from various crops so that uniform products can be obtained.

No ingredient will be accepted unless it meets the specifications which have been set down and agreed upon before the purchase is made. Once the ingredients go into the shop, if so controlled, they are known to be of high quality.

The modern baker, in order to get the most out of these ingredients, must know something of the results he can expect, and the purpose for which each ingredient is intended. A general knowledge is sufficient when he has high quality ingredients and very seldom is the actual manufacturing process followed by a scientist. This is left to the craftsmanship and technical skill of the baker. The baker must not only have this skill in making a single product but he has to turn out a great variety of bakery products, both yeast-raised and chemically-leavened, such as cakes. If something goes wrong during the process of manufacture that the superintendent cannot handle, then the baker's quality control laboratory is called in. It is their job to locate the trouble and tell the baker how to correct it.

It is important that the laboratory test the finished products to see if they will keep their original high quality condition for the duration of time they remain on the grocer's shelf or in the home before they are consumed. Many bakers pay particular attention to this point, although they do not have a laboratory. Laboratories of some of the large bakeries have products sent in from all their various units which are tested weekly. They not only test these for their keeping qualities, but also determine their original quality. It is the laboratory's duty to see that the products come up to the quality standards which have been set. Many laboratories test bakery products for volume, external symmetry and color, grain, texture, flavor, color of crumb, and "chewability." Besides this, the product may be tested for its rate of staling. The wrapper and the effectiveness of sealing may be tested for moisture-proofness. The tenderness and the softness of the product may be measured by mechanical means. In the case of cookies, crackers, pie dough, etc., the shortness of the product may be measured. The laboratory exerts every effort to see that the products are up to standard. In addition, the qual-

ity control laboratory sees that the products are safe for consumption, that is, free from bacterial or foreign substance contamination. In addition, every recent development is utilized by the bacteriologist for the elimination of mold contamination, including ultraviolet lamps, air-conditioning, and special methods of preparing products.

The smaller baker, of course, is at a disadvantage in attempting quality control of his products, yet there are many laboratories such as the American Institute of Baking where he can send them to be tested. Many bakers are taking advantage of a service of this kind.

PRESENT RESEARCH OF INDUSTRY

Research of the organized industry itself is carried on in the laboratories of the American Institute of Baking. In addition, the American Institute of Baking includes a Technical School and a Department of Nutrition. The teaching staff of the school, of which Mr. William Walmsley is principal, is made up of practical bakery technicians and scientifically trained personnel. As far as possible the instructors attempt to bring the scientific research atmosphere to the students. This is very important for it has sent more than 1200 young men out into the industry with a stimulus to undertake their job in a scientific atmosphere. The instructors themselves are more or less actively engaged in research.

Some problems which have been investigated and which are receiving consideration by the Institute laboratories are as follows: improvement of means of scoring and testing bakery products; improvement of the quality of the loaf by the use of the proper size pan; improvement in bread flavor; use of various methods for the sanitary protection of custard and cream-filled baked goods; retarding the staling of bread and other bakery products; studies on nutritive properties of bakery products; and chemical and physical changes that take place in flour on storage.

In addition to the above studies which are mainly concerned with baking technology, the Department of Nutrition under the able direction of Dr. James A. Tobey has made grants for research fellowships at leading universities for studies on the nutritional aspects of bread and bakery products. At present scholarships have been established at the Massachusetts Institute of Technology under Dr. S. C. Prescott, and at Columbia University under Dr. H. C. Sherman.

Much research is performed by allied industries, universities and agricultural experiment stations. Some recent developments to which allied industries have contributed, are air-conditioning and vacuum-cooling of bakery products, basket pans for hearth-baked products, modern automatic labor-saving machines, development of high quality ingredients, and studies on the various nutritive aspects of bread. Universities and agricultural experiment stations have done a great amount of work in the field of theoretical baking technology. It would be impossible to list all of these investigations here, but they include studies on methods for wheat improvement, physical and chemical properties of doughs and batters, means of determining and evaluating flour quality, and standardizations of flour characteristics from season to season.

NUTRITIVE PROPERTIES OF BAKER'S PRODUCTS

The relationship between baking technology and national nutrition has been discussed by Tobey (4); however, due to the great importance of this subject, it will be reviewed here.

Bread is one of our most important energy foods, and since the baking industry markets more bread than any other product, let us confine our remarks in this section to bread. The average white bread made today is entirely different from that made many years ago. It contains more sugar, more shortening, and above all, more milk. The increased use today of milk, sugar, and shortening in making bread means that the baker is actually using less flour, proportionately, today than formerly.

The baking industry is using about three times as much milk solids today as 15 years ago; in fact, the baking industry today uses more milk than any other single industry.

Without appreciably increasing the cost per pound of bread, milk improves bread quality and also the nutritive properties of the loaf. It supplements with complete proteins the nutritive properties of the wheat proteins, glutenin and gliadin. As a result, modern white bread contains 9 to 9½ per cent high quality protein. The use of this milk likewise tends to increase the mineral content of the bread, for instance, the calcium and phosphorus content. These two minerals are further augmented by the use of dough conditioners mentioned above, which contain salts made up of calcium and often phosphorus. As a result, modern white bread is a much better source of calcium than past analyses indicate. The most recent work shows that average white bread will contain 0.08 per cent calcium (5); thus six slices of bread a day will furnish 30 per cent of the minimum daily calcium requirements of the normal adult.

The addition of milk to white bread (except French type bread) has increased the nutritional value of white bread to a point where there is little to say in regard to the virtues and values of whole wheat bread versus white bread. The only nutritional advantages of whole wheat bread are the higher vitamin B_1 or thiamin, vitamin E (alpha-tocopherol), and iron contents; however, the fact that whole wheat products are more indigestible than the white, due to their bran content, would tend to offset some of these advantages. White bread is a fair source of copper, and both the copper and the iron are efficiently utilized (6). Modern white bread made with milk undoubtedly is a fairly good source of riboflavin or vitamin B_2 (4); yet it contains only about one-fourth of the thiamin content of whole wheat bread (7). The addition of milk also increases the amount of nicotinic acid in white bread. Baking does not appreciably affect the thiamin or riboflavin content of bread (8) and this is probably also true of nicotinic acid.

The scientist is making it possible for the baker to replace enough thiamin to make white bread equivalent to whole wheat in respect to this factor. It seems that thiamin in white bread is desirable, for the American public always prefers white bread with its bland and attractive flavor, to whole wheat bread. This is apparent when one considers that only about 2 per cent of all wheat flour now consumed in this country is of the whole wheat variety. Methods which have been offered to the

baker for increasing the thiamin content of white bread, while new, are gradually being adopted. One, a new method of milling, is reported to preserve most of the original content of thiamin in white flour; another is the adding of ingredients enriched with thiamin, such as yeast. And finally, thiamin itself can be added directly to the dough. All of these methods are applicable since there is but little loss of thiamin in baking. These recent developments will undoubtedly greatly improve the nutritive qualities of white bread as soon as methods can be developed which are economically satisfactory. In a recent article published under the auspices of the Council on Foods of the American Medical Association (8a), fortification of staple American foods with thiamin is said to be definitely in the interest of the public, since there is evidence that American dietaries as a whole are unsatisfactory with respect to the content of thiamin. It should be pointed out, however, that the adoption of such methods while improving its dietary value, will not make bread a "perfect" food.

Bread is one of the more concentrated sources of food. Recent analyses show that white bread in the Chicago area contains only 35.5 per cent moisture as it is placed on the table for serving (9). There are few foods that contain less moisture than bread.

PRODUCT PRESERVATION

Product preservation receives the attention of the research and development chemist, and the quality control chemist. The baker is dealing with very perishable products which must be placed in the consumer's hands while they are still fresh. If held too long, part of their general attractiveness and freshness will be lost, thus the time and effort of many research and development scientists have been spent in studying methods and procedures for prolonging the freshness of baked products. Even so, the baker has one advantage in his favor, the nutritive properties of stale products are the equal of the fresh (10).

Staling in bakery products is due to two causes: first, loss of moisture; second, a change in the form of the starch. The first is rather easily prevented. The baker has available, thanks to the scientist, moisture-proof wrappers which will prevent the loss of moisture while allowing the product to "breathe", *i.e.* permit certain volatile substances to pass through (important in preserving flavor). Incidentally, this flavor factor is the one which is considered most important by the consumer; therefore much attention is directed to prevention of loss of flavor.

What causes the change in the form of the starch is not clearly understood, and there are no economical methods available at present for preventing this change (10). The most feasible way of retarding the change in the form of the starch from the fresh to the stale state is by freezing at low temperatures (11). This method has not been practically applied to any extent as yet; however, freezing is being considered for such purposes and in emergencies such as war it may prove of real importance (12). Preliminary experiments show that the method is applicable to cakes and pies (13). The success of the method depends, to a great extent, upon the products being wrapped so that little or no moisture is lost. Best results are obtained when the products are hermetically sealed. In her-

metically sealed containers bread can be kept at freezing temperature in good condition for approximately one year (14). After adequate methods of product preservation have been decided upon, it is a job for the products control laboratory to see that the products are handled accordingly.

CONCLUSIONS

The food manufacturer, in general, has a difficult job controlling his products, for in most instances he is dealing with a complex, unstable biological substance. This is especially true of the baker. Nevertheless, his watchword is "quality and uniformity regardless of price", for constantly maintained quality and uniformity bring consumer acceptance.

Some bakers today have quality control laboratories—more will have them in the future. These laboratories mean financial outlay, but the baker is willing to pay for them because they are an insurance that his products are good and will remain good. Since the baker is not a chemist or bacteriologist, it is extremely important that some agency interpret new discoveries and scientific data to the baker, and further, to the consumer. In this way only can true and lasting progress be made.

Due to inherent variables in the ingredients and the complexity of the process of fermentation, baking itself is still an art; however, science has taken the front seat in product production. Science has equipped the baker with better raw material, a better understanding and knowledge of how to handle methods of manufacture, and has given him methods which enable him to produce more uniform and better quality products with better keeping qualities. Science has taken the mystery out of baking, and in turn, given us the modern baker.

Superintendents in large modern bakeries today apply scientific methods. They may not be scientifically trained men, but their practical methods of supervision, control, and checking are the practical application of science. These men know how to correct faults and realize that certain methods give fixed results. This is the scientific method. Modern bakeries are really laboratories of applied chemistry.

REFERENCES

(1) Morison, C. B.: Indust. & Engin. Chem., 20: 1292, 1928.
(2) A. Off. Agric. Chem.: Methods, 1935.
(3) Am. A. Cereal Chem.: Cereal laboratory methods, 1935.
(4) Tobey, J. A.: Scient. Monthly, 49: 464, 1939.
(5) Prouty, W. W., and Cathcart, W. H.: J. Nutrition, 18: 217, 1939.
(6) Myers, V. C., Remp, D. G., and Bing, F. C.: Cereal Chem., 12: 372, 1935.
(7) Schultz, A. S., Atkin, L., and Frey, C. N.: Cereal Chem., 16: 643, 1939.
(8) Morgan, A. F., and Frederick, H.: Cereal Chem., 12: 390, 1935.
Scheunert, A., and Schieblich, M.: Biochem. Ztschr., 290: 398, 1937.
DeCaro, L.: Quaderni N., 3: 171, 1936.
Copping, A. M., and Roscoe, M. H.: Biochem. J., 31: 1879, 1937.
Aughey, E., and Daniel, E. P.: J. Nutrition, 19: 285, 1940.
(8a) Cowgill, G. R.: J.A.M.A., 113: 2146, 1939.
(9) Cathcart, W. H.: (to be published).
(10) Cathcart, W. H.: Cereal Chem., 17: 100, 1940.
(11) Cathcart, W. H., and Luber, S. V.: Indust. & Engin. Chem., 31: 362, 1939.
(12) Cathcart, W. H.: Am. Bakers A. Bull., 2: 242, 1939.
(13) Cathcart, W. H., and Pushnik, W.: Am. Bakers A. Bull., 2: 443, 1939.
(14) Unpublished observations.

EDITORIAL

WHY THE ARMY DIETITIAN NEEDS MILITARY STATUS

In the civilian hospital the dietitian functions as an executive head of the dietary department, responsible only to the superintendent, and in a 1000-bed hospital she directly supervises from 200 to 300 employees in her department. The word "supervise" is meaningless unless control may be exercised by reason of the authority vested in the supervisor. Efficiency in the operation of any department is dependent upon such inherent authority being vested in the head, delegated in turn to his assistants, and continued on down to the minor groups. There should be no detours, no dead ends, to block this flow of authority.

Competent authority demands specialized ability and knowledge of a given job. Technical skill or ability is a broad and somewhat loose term, being applicable to such widely divergent human activities as book-binding, music and medicine. Some skills may be largely manual, requiring a modicum of art, no knowledge of science, and a brief period of training. That specialized ability and knowledge which the hospital dietitian must exercise as an executive calls for four years college training in the science of nutrition and management, and a demonstrated proficiency, acquired in a subsequent year's dietetic internship, in the art of feeding individuals and groups. Her (and we use the feminine article advisedly, for there are but two or three male dietitians) knowledge of the science of nutrition—a science recognized by physicians today as most fundamental in the promotion of physical well-being and the therapy of disease—carries with it a practical ability to apply this in the feeding of the sick and the well.

Her practical ability in the field of hospital food service administration stands uncontested, for it was the dietitian who devised that close control of the hospital food budget which calls for wise purchasing and selection, storeroom control, control of waste through the use of standardized recipes and portions, wise use of left-overs, and above all, efficient control of personnel and in turn, food preparation. It is self-evident that "supervision" of food preparation demands control of the personnel preparing it. There are no short-cuts, no special dispensations, by which ability to supervise a hospital food service may be conferred.

What are the duties of the dietitian in the military hospital? To quote from S.G.O. 231 dated April 24, 1940, these are "essentially the same as in civilian hospitals, *i.e.*: Preparation of diet menus, supervision over the preparation, cooking and serving of all diets, instruction of diabetic patients in measuring and weighing food and general supervision over the quality and preparation of food served to patients." The same communication adds, "Since dietitians are civilian employees, they do not ordinarily have control over mess personnel." This last is the crux of the whole situation, for supervision implies direct, "on the spot" control and can never be efficiently accomplished by circuitous means through an absentee executive.

Under date of July 25, 1940, the War

Department issued T/O 8-507 on the organization of a 1000-bed general hospital, the militarized personnel of which includes under the mess the following: 1 major, 1 second lieutenant (Medical Administrative Corps), 1 staff sergeant, and 3 mess sergeants. While the full details as to the duties of each are unavailable at this writing, it is reasonable to assume that the three mess sergeants are the "on the spot" executives to whom the 36 cooks, 2 bakers, 2 butchers, and roughly, 150 first and second class privates are directly responsible, since dietitians, as civilian employees, "do not ordinarily have control over mess personnel." The same communication carries an addendum to the effect that "in addition to the military personnel listed hereon", the services of the following civilians are required: namely, 1 head dietitian and 7 additional dietitians. Except that the numerical odds now seem to be greatly in favor of the dietitian, as indicated by 8 dietitians contra 3 mess sergeants, the situation appears to be unchanged from that in effect during the World War in which most base hospitals listed 1 dietitian and 1 mess sergeant, whose duties conflicted to a greater or less degree.

If the military organization corresponded in any degree to that of the civilian hospital, the duties of the second lieutenant, Medical Administrative Corps, would be taken over by the head dietitian who by the very nature of her training and experience would be better fitted to manage office routine concerned with a food service, a responsibility which could be assumed to be that of the above mentioned second lieutenant. In addition there could be no argument as to the dietitian's greater ability to act as an assistant to her immediate superior, the major, who also could be assumed to be less experienced in the innumerable technical details concerned with the management of a food service. Likewise, in the civilian hospital there would be no uncertain delegation of authority to the 7 assistant dietitians who in such hospitals control the selection, preparation and service of food from the store-room to the ward.

The lumping of such a heterogeneous group as that now known as medical technicians, or members of technological branches associated with the Medical Corps, in which, according to recent comment[1] the "makers of splints and braces" are included with the dietitian, and restricting the whole mass to the level of civilian employee, irrespective of their individual duties, is a simple but may be a short-sighted system. Indiscriminate granting of military status, whether commissioned or noncommissioned, to groups solely because of the political pressure they may impose thus to procure rank and advancement and irrespective of their fitness, is to be deplored. But those whose duties entail the direction of militarized personnel in significant numbers, and who by reason of education and ability merit such responsibilities, in fairness merit also the backing that only well-defined military status can give. The dietitian's status in a military hospital in relation to the commissioned members of the Medical Corps would not be changed one iota from that in the civilian hospital, were she to receive rank available in the lower grades of the Medical Corps and comparable to that of the members of the Army Nurse Corps, for

[1] J. A. M. A., 115: 1724, 1940.

the dietitian, like the nurse, knows the limitations of her field of work and is accustomed to carrying out the orders of the physician as her superior.

WOMAN'S CENTENNIAL CONGRESS, 1840–1940

Women in America first began to organize in that hesitant founding of the "Ladies' Association for Educating Females" in Jacksonville, Indiana, in 1833, according to Judith Clark Moncure of the American Association of University Women and member of the Council on the Education and Position of Women in a Democracy, in a discussion presented at the Congress in New York on November 25–27.

The event served to mark the striking advance of American women in the last century. In 1840, when a few intrepid women began the active campaign to free themselves from those laws and customs restricting their activities in the home and society, there were only seven occupations in which women could earn money—domestic service, keeping boarders, teaching young children, needlework, weaving, typesetting and bookbinding. Today there are "100 important careers open to women", according to Mrs. Carrie Chapman Catt, chairman of the Congress. These cover the fields of public service, education, science, medicine, theology, social service, law, engineering, home economics, newspaper and publicity, business, the theatre, music, museums, and public safety. One hundred leading women in these several fields were listed.

Among the four women mentioned in the home economics field were three members of the American Dietetic Association: Dr. Helen T. Parsons, professor of home economics, University of Wisconsin; Mary I. Barber, President of the Association; and Millie I. Kalsem, chief executive dietitian at Cook County Hospital, Chicago.

Since the dietitian is primarily concerned with the very practical and pressing problem of feeding people adequately, she at times has tended to become detached, isolated from the day's teeming current of events. Years ago, Dean Margaret Justin, then president of the American Home Economics Association, reminded us of this when she said that the dietitian has been more concerned with her job than with her status in a politically changing world. She recalled that "there are those who, while granting intellectual equality to women, hold that she is inherently emotionally unstable. . . . upon the women of this era falls the task of demonstrating that in all phases, maturity in its fullest sense can be theirs." This adult perspective on life, today, is more than ever essential if the dietitian is to attain that full stature to which she is entitled. Her active participation in such gatherings as the recent Congress should awaken her to her responsibilities in the social scheme and the need for working shoulder to shoulder with her sisters in other fields. Only thus may she dispel those faintly recurring echoes of the hoary query, "Are women people?", which conditions the reasoning that disputes fair recognition to trained people solely on the basis of their sex.

CURRENT COMMENT

MEDICINE AND NURSING IN THE NATIONAL DEFENSE PROGRAM

In an address before the American Dietetic Association on October 23, Dr. Peter Irving, secretary of the Medical Society of the State of New York, said that the medical profession has visualized two objectives in the defense program: "first, medical care of those in uniform; second, unfailing care of the civilian population not only during actual war but also during preparation for possible war."

On June 10 the American Medical Association's House of Delegates adopted a resolution that all the doctors of the country be classified with the aid of county and state medical societies and the national organization. Some would be qualified for the active uniformed service; others, for home duty. For both services the physicians were to be classified as to their particular capacities, general or special. To this end the American Medical Association sent questionnaires to the 175,000 doctors in the country. In New York State, according to Dr. Irving, the emphasis has been primarily on the county societies since these are in close contact with local conditions, population, medical needs and capacities, and personal responsibilities of the doctors. The state society sent out its own questionnaire to every licensed and registered physician in the state. The replies have been returned directly to the secretary of each of the 61 county medical societies.

The machinery set up consists of a central committee of ten at A. M. A. headquarters and a representative from each state medical society. In general, this effort would first list those already in the Medical Reserve Corps or National Guard and then meet the need for enlargement of government-medical groups as a result of selective service and in preparing for possible war. In addition, physicians are to be enlisted for home service. It is important to know the personal capabilities of each, general or special, and particularly so for civilian needs.

Early in August, according to Dr. Irving, representatives of the Medical Society of the State of New York met with a legislative commission appointed to formulate a long range health program for the state. Representatives of public health, hospital, nursing organizations, the American Red Cross, and other groups who attended, approved that a recommendation go to Governor Lehman for the appointment of county committees to be known as Official Advisory Health Preparedness Committees. These are now being rapidly formed. The chairmen of the boards of supervisors, and in some instances the mayors of cities, are appointing representatives of the various organizations interested in health to serve on these committees.

Mary M. Muckley, assistant director of headquarters, American Nurses Association, who also addressed the Association, stated that "over a period of years every effort has been made through the state and local groups of nurses to develop individual members who have initiative, imagination and qualities of

leadership and who are prepared to do their part in the total nursing program of national defense."

On July 20, 1940, at the request of Major Julia C. Stimson, president of the American Nurses Association, a representative group of nurses met at National Nursing Headquarters to consider the function of nurses and nursing in the plans for national defense. As a result, a Nursing Council on National Defense was formed with Miss Stimson as chairman. The council is composed of representatives from the national organization of nurses and the directors of the nursing services of the American Red Cross, Army and Navy Nurse Corps, U. S. Public Health Service, Veterans Administration, Bureau of Indian Affairs and other services.

Through the council, certain phases of the programs of these nursing groups will be determined and their activities coordinated, thus confusion and overlapping of effort will be avoided. The functions of the council, as outlined, include determining the role of nurses and nursing in the program of national defense, unifying all nursing activities which are directly or indirectly related to national defense, ensuring the continuance of the high quality of nursing schools and services, acting as a clearing house regarding nursing and national defense, and cooperating with other agencies having related activities and functions.

Later, a subcommittee on nursing was added to the Health and Medical Committee of the Council on National Defense with Mary Beard, director, Nursing Service, American Red Cross, Washington, as chairman. A survey of nursing resources is being sponsored by the U. S. Public Health Service with the three national nursing organizations as co-sponsors, assisted by the American Red Cross. The information obtained from such a survey would be of specific value in building up the enrollment in the first reserve of the American Red Cross Nursing Service for the Army and Navy, and would provide more complete and accurate knowledge of nurses and nursing resources in this country than has heretofore been available. Another activity is directed toward increasing the enrollment of students in schools of nursing and in advanced professional programs.

Nurses, Miss Muckley believes, through their professional organizations and services, have the means at hand and are making every effort to function efficiently and intelligently in meeting the responsibilities which may be put upon them. In the words of Dean Goodrich of Yale University School of Nursing, "Nurses stand for action in times of need."

BOOK REVIEWS

The Fundamentals of Nutrition. By Estelle E. Hawley, Ph.D. and Esther E. Maurer-Mast, M.D. Springfield, Ill.: Charles C. Thomas, pp. 477, 1940. Price $5.

This book is an unique addition to texts on the subject of nutrition. Associated with the authors are nineteen collaborators in the fields of chemistry, physiology, medicine, pediatrics and surgery, each a specialist in his field and each contributing a chapter discussing dietary management in a specific condition. The foreword is by Dr. John R. Murlin, professor of physiology and director of the Department of Vital Economics, University of Rochester.

The material is divided into the following sections: Metabolism; Fundamentals of Nutrition; Diet Therapy; and Diet Planning. The table of 100-calorie or "standard" portions included in Section IV is excellently done. The appendix gathers together valuable miscellany, including recipes for special conditions.

"An outgrowth of Dr. Hawley's experience in imparting the fundamentals of nutrition" to medical students, this text should find wide use among dietitians, nutritionists and teachers—in fact among all workers in the field of nutrition.—GRACE CARDEN, *Strong Memorial Hospital, Rochester, N. Y.*

Institution Recipes, Standardized Large Quantities. By Emma Smedley. Sixth edition. Published by the author, Media, Pa., 1940, pp. 360. Price $3.

The sixth edition of Miss Smedley's book will be welcomed by all who direct the preparation of food for large numbers of people, most of the recipes being for 150 portions although some are for 50. Furthermore, the food values in terms of protein and total calories are given for each recipe and for one portion of each recipe, making the book of special value in the use of calculated diets.

This was the first American book to be published giving standardized large quantity recipes, the first edition having appeared in 1904 while Miss Smedley was still instructor in dietetics at Johns Hopkins Hospital, at which time she was also in charge of the kitchen and dining room of the nurses' residence, and therefore had an opportunity of standardizing her recipes for a hundred people or more. Later she was instructor in quantity cookery at Drexel Institute and still later was in charge of all public school lunchrooms in the City of Philadelphia. She is, therefore, ably prepared for writing such a book. The book has been kept up to date, each edition containing new recipes. It is still a standard edition and is used in hundreds of hospitals, school lunchrooms and cafeterias.—LENNA F. COOPER, *Chief, Department of Nutrition, Montefiore Hospital, New York.*

Food, Nutrition and Health. By E. V. McCollum and J. Ernestine Becker. Fifth edition. Published by the authors, East End Post Station, Baltimore, Md., 1940, pp. 127. Price $1.50 postpaid.

The fifth edition of this little book is particularly timely now when world crises make intelligent use of food more than ever essential. Then too, as the authors say in their preface, confusion due to misinformation in matters of nutrition as a result of the ranting of food faddists and the exploitation of nostrums, is always with us and needs dispelling.

The unquestioned scientific status of the authors of this book and their ability to express themselves pleasingly and lucidly, need no further commendation. For those few readers of this JOURNAL who may not have profited by previous editions, a brief summary of the contents is in order. The introduction concisely summarizes the whole subject of food and orientates the reader to the subsequent chapters. First, the whole story of the vitamins to date, which to many is as confusing as a crazy quilt pattern, is arranged in an orderly design. Our present knowledge is authentically summarized in twenty-four pages and for those who, like Don Marquis' lady, "do not retain very well" the authors have arranged a tabular "summary of the vitamins of known significance to humans." This includes the "probable" daily requirement, since exact requirements are more or less an open question at the moment.

Then follows a discussion of the mineral elements in nutrition in which the weaknesses of common diets in this respect are pointed out. Graphically the authors show how such shortcomings may be corrected.

The dietary properties of foodstuffs, both vegetable and animal, are then presented and also summarized in tabular form.

The authors then pause for coffee and tea, before presenting chapters on pernicious anemia; diet and preventive dentistry; diet in pregnancy and lactation; the nervous system and nutrition; hygiene of the digestive tract, in which the all too prevalent cathartic gets its due; and diet and acidosis, in which the disciples of one whose name connotes cured grass, and those who lean toward "deficient drainage," are properly instructed.

Chapters on the relation of diet to weight control, life history in relation to diet, and dietary habits of man, are aptly followed by a chapter on "A System of Diet which Promotes Health." Here for the laity is the meat of the nut. For the primary considerations in planning the adequate diet are stated in actual amounts of definite foods, with suggestions for seasonal menus for those of normal weight, and winter, spring, summer and autumn menus for the guilty overweights.

As a happy afterthought the authors add a few pertinent paragraphs on safeguarding vitamin and mineral values in food preparation. A table on the distribution of vitamins A, B_1, C, D and riboflavin in foods, and an index complete this invaluable little book.

All About Home Baking. Consumer Service Department, General Foods Corporation. Third edition. New York, 1939, pp. 144. Price 25 cents.

This book is aptly named for it is just that. The contents tell you what tools you need and include all the necessary technical information to produce the perfect product: measuring tables; methods for controlling heat; correct temperatures; baking time tables; many excellent basic recipes with directions for appropriate variations; and photographs clearly delineating procedures, which will assist the novice. Many recipes are given for cookies, cakes, pastries and muffins, and several illustrations in color and black and white. For good measure the authors have included everyday and party menus and directions for table service, and a complete index. The General Food Corporation is to be congratulated for developing this excellent book, attractively bound with a washable plaid cover, at such a low price.

A Wine Lover's Cook Book. By Jeanne Owen. New York: M. Barrows and Company, Inc., 1940, pp. 197. Price $1.75.

The statement that the author of this book is of French ancestry and long a resident of southern France encourages the reviewer to open it with pleasurable anticipation. The sections of recipes are divided into seven: those using white wines—chiefly the Chablis, Graves, Sauternes and Moselles; champagne on the table and in the kitchen; the aromatic vermouth for flavor in food; red wines, clarets, Burgundies and Medoc or the simple *vin du pays* in fine cooking; Sherry, Madeira, Port and Marsala; spirits in cooking; and liqueurs and their value in desserts.

Appropriate wine services are suggested for many of the entrées. Certain of the recipes may startle American cooks, as for example *Choucroute Alsacienne*, in reality sauerkraut *en casserole* to which champagne and other seasonings are added, and the chicken sauté Ambassador which calls for cockscombs, a rather characteristically Gallic culinary ingredient. Also we find recipes for *cèpes*, those exotically colored and delicious French mushrooms, obtainable here only in cans. Perhaps the suggestion of Chateâu d'Yquem (and by the way, Mrs. Owen, it's *not* Chateau-Yquem) in potato salad, even to the cosmopolite, would be rather startling. But the book is certainly an original and stimulating contribution and is replete with refreshing ideas for seasonings. Such books do indicate a rebirth of gastronomic interest in America, almost the only remaining country where the art of gentle living is still possible. Mrs. Owen truly dignifies cooking as the mother of all the arts.

Elementary Dietetics for the Student of Domestic Science and the Housewife. By George Zephirin Dupain. Sydney, Australia: George B. Philip & Son, 1940, pp. 128.

There is need for non-technical books and articles on nutrition so written as to appeal to the layman. This Mr. Dupain has recognized. His introductory chapters define terms, classify foods and divide these according to function. He then discusses "balanced meals" and points out the all too common failings of many menu combinations. He also gives skeleton meal combinations to which little exception can be taken. Citrus fruits might receive more emphasis. Meat is generously allowed but in a coun-

try where this is relatively cheap who could object to a grilled steak for breakfast now and then? Several graphs showing specific food values of common foods, and tables of 100-calorie portions and mineral and vitamin values are included. This should prove a very helpful reference for the layman.

The Weston-Levine Vitamin Chart. By Roe E. Remington, D. Sc., Director of Food Research Laboratory, Medical College of the State of South Carolina. Single copies 10 cents, postpaid, upon application to Dr. Roe E. Remington, The Windermere, Charleston, S. C.

This chart, in its ninth year of issue, has been completely re-written with substantial deletions and additions and contains the evaluated results of most recent research on this subject.

Cakes, Cookies and Cake Icings for Quantity Cookery. By Alice Easton. Stamford, Conn.: The Dahls, 1940, pp. 57. Price 50 cents.

This handy booklet sets forth important details concerning the ingredients for butter and sponge cake. Information on flour facts, sugar selection, shortening, eggs, milk and baking powders is included in the opening chapters. At least 50 recipes for cakes, fillings and frostings follow, and a tempting array of cookie, brownie, and fruit bar recipes conclude this helpful addition to the Gold Book Series.

The B Complex and Diabetes

IT IS NOT IMPOSSIBLE that some of the hypoglycemic effects of decoctions and extracts of vegetable material are due to the presence in such preparations of one or several of the factors of the vitamin B complex. That vitamin B plays some role in carbohydrate metabolism was suspected by Funk and von Schönborn, because their pioneer studies demonstrated that feeding carbohydrate would aggravate the symptoms of beriberi, and that limiting the intake of starches and sugars was beneficial in this avitaminosis. The observation has been widely confirmed.

It is not improbable that the several factors of the vitamin B complex are synergistic and that the complex as a whole may have effects greater than those of any of its components taken separately. Several reports have appeared to indicate that concentrates of the complex, such as rice polishings and brewers' yeast, may favorably affect the tolerance of diabetic patients. Also, the blood of patients with diabetes has been found by Magyar to be less effective than normal blood in relieving the symptoms of beriberi when fed to pigeons and young rats suffering from this avitaminosis. The substance missing in the diabetic blood was not determined. To judge from unpublished observations in our laboratories it probably is not vitamin B_1.

In future monographs on diabetes these few paragraphs may need to be replaced by an important chapter. At present the evidence of value in diabetes from therapeutic doses of the vitamin B complex, or any of its constituents, is conflicting but suggestive. The diabetic organism probably requires more of the vitamin B complex than easily is obtained in a mixed diet. If diets high in white flour and sugar are prescribed, the danger of deficiency is increased, and with such diets it probably is wise to supplement the intake of the entire vitamin B complex by giving brewers' yeast. Doses of thiamin or riboflavin, in excess of the amounts of these obtainable in well planned diets, have not been therapeutically effective, except in cases in which the intake of these substances previously has been deficient, but much work is under way in this field and conclusions must be withheld.—*Wilder, R. M., Clinical Diabetes Mellitus and Hyperinsulinism, pp. 160–161, Philadelphia: W. B. Saunders Company, 1940.*

CURRENT LITERATURE

American Journal of Digestive Diseases

Vol. 7, October 1940

*Gastritis simulating peptic ulcer. A. B. Rivers and L. A. Smith.—p. 424.

*Comparative *p*H values within the stomach, pylorus and duodenum in antacid therapy. J. B. Eyerly.—p. 431.

GASTRITIS SIMULATING PEPTIC ULCER. Gastritis should be accepted as a legitimate member of the family of stomach diseases. The patient who does not give roentgenologic evidence of disease in the upper part of the gastro-intestinal tract, but who has symptoms referable to the epigastrium or left hypochondrium, which recur at fairly definite intervals following meals, often recur at night and are relieved by food or soda, even though these symptoms lack the clock-like precision of many peptic ulcers, should be considered to have gastritis.

COMPARATIVE *p*H VALUES. There are rapid and marked fluctuations in the *p*H of gastric and duodenal content in the fasting state as well as when antacids are given. Antacids in general raise the *p*H of the gastric and pyloric content. In antacid therapy the *p*H of the duodenal contents may be lower than that of the fasting state. Twenty grains of tribasic magnesium phosphate on the hour and 3 ounces of milk on the half-hour produced the most satisfactory *p*H elevation.

American Journal of the Medical Sciences

Vol. 200, October 1940

*Anemia and water retention. B. M. Strauss and H. M. Fox.—p. 454.

*Acute nephritis: Review of 77 cases. J. M. Hayman and J. W. Martin.—p. 505.

*Intubation studies of the human small intestine. XIV. The absorption of glucose from the duodenum. W. O. Abbott, W. G. Karr, P. M. Glenn and R. Warren.—p. 532.

*Clinically associated deficiency diseases. T. D. Spies, A. P. Swain and J. M. Grant.—p. 536.

*Vitamin C in epilepsy. Dilantin sodium not a cause of vitamin C deficiency. H. H. Merritt and A. Foster.—p. 541.

ANEMIA AND WATER RETENTION. The magnitude of water retention in 26 patients varied inversely with the hemoglobin level, the more anemic subjects showing the greatest retention. Anemia *per se* appears to be conducive to water retention.

ACUTE NEPHRITIS. Of 77 cases of acute glomerular nephritis, 75% followed infection of the upper respiratory tract. The disease is most common before the age of 30. The cardinal symptoms of hematuria, hypertension, and edema were not all present in every case.

ABSORPTION OF GLUCOSE FROM THE DUODENUM. The duodenum absorbs glucose very rapidly as compared to other regions of the alimentary canal of equal length and at a rate that varies in the individual from day to day. As little as 6 gm. per hour has been absorbed from dilute solutions. The maximal rate from solutions within the normally occurring concentration range is about 20 gm. per hour.

DEFICIENCY DISEASES. A total of 1250 persons with clinically associated deficiency disease syndromes have been treated without a fatality, whereas the mortality rate a few years ago was 54%. Studies reveal a deficiency in calories, protein, calcium, phosphorus, iron and the known vitamins. Mixed rather than single deficiency diseases are the rule. Months and years of ill health precede any diagnostic lesions of a specific deficiency. Vitamin B is composed of 12 or more separate factors. Mixed vitamin therapy is often desirable.

VITAMIN C IN EPILEPSY. The low level of vitamin C in the plasma of clinic patients with epilepsy is due to an inadequate intake of this element. The long continued administration of dilantin sodium had no effect on the vitamin C level of the plasma and did not influence the absorption of vitamin C when given by mouth.

American Journal of Physiology

Vol. 130, October 1940

*Dark adaptation and experimental human vitamin A deficiency. S. Hecht and J. Mandelbaum.—p. 651.

DARK ADAPTATION. Measurements of the dark adaptation of 17 young men made before, during, and after their stay on a vitamin A-deficient diet show that cone and rod visual functions are both affected by diet. When subjected to deficient diet, most individuals responded by an immediate and unmistakable rise in visual threshold which continued for the

duration of the diet. Partial recovery from an A-deficient diet was slow, requiring weeks and months. Partial recovery of the visual threshold was accomplished in some individuals by single large doses of vitamin A.

American Journal of Public Health

Vol. 30, October 1940

*Diet and resistance to infection—III. Genetic versus dietary factors. C. F. Church and C. Foster.—p. 1217.
*Raw garbage and trichinosis. Editorial.—p. 1227.
Tularemia. Editorial.—p. 1229.

RESISTANCE TO INFECTION. Sibling mating of mice showed the importance of the genetic factor on survival after inoculation with Salmonella enteritidis. Substitution of crossed mating is necessary to test the importance of the maternal diet in resistance to infection.

TRICHINOSIS. A survey of 764 cities of 10,000 inhabitants or over showed that 52.7% disposed of their garbage entirely or partly by feeding it to swine. Most of these fed the garbage in the raw state, only 24 cooked it and some only a part. Trichinosis is most prevalent where hogs are fed raw garbage. The Pacific Coast states, in which 82.8% of the cities dispose of garbage by feeding, have the highest morbidity rate. The New England states, second in morbidity rate, lead all areas in number of cities feeding garbage to hogs. Many of the hogs fed on raw garbage are slaughtered locally and are not marketed in federally inspected packing plants.

Annals of Internal Medicine

Vol. 14, October 1940

*Vitamins in peptic ulcer. H. Field, W. D. Robinson and D. Melnick.—p. 588.
*Prevention of pernicious anemia: Recognition of the latent stage in relatives. J. M. Askey.—p. 593.
*The treatment of diabetes mellitus with a four-meal diet: A means of circumventing certain difficulties arising in the use of protamine zinc insulin. H. M. Margolis V. W. Eisenstein.—p. 667.

VITAMINS IN PEPTIC ULCER. The majority of patients with peptic ulcer have a deficiency in vitamin C. Those that restrict meat and green vegetables might show a pellagrous type of deficiency. The patients receiving intensive alkali therapy showed chemical evidence of a deficiency of vitamin B_1.

PERNICIOUS ANEMIA. Pernicious anemia is frequently, if not invariably, transmitted by heredity. The development of severe pernicious anemia and its neurological sequelae can be prevented in many instances if all antacid relatives are considered as being potential cases of the disease.

PROTAMINE ZINC INSULIN. A four-meal regimen makes the treatment of diabetes mellitus with protamine zinc insulin a safe and practical procedure for office and clinic use. The satiety, contentment, and morale of diabetic patients are enhanced and insulin fatalities eliminated.

Archives of Internal Medicine

Vol. 66, October 1940

*Observations on induced thiamine deficiency in man. R. D. Williams, H. L. Mason, R. M. Wilder and B. F. Smith.—p. 785.

INDUCED THIAMIN DEFICIENCY. A dietary supply of 0.95 mg. thiamin was associated with no clear-cut evidence of nutritional deficiency, but it provided less than a sufficient amount of this vitamin for the best nutritional state of the patient. A climatologic factor may, and physical activity does influence the rate of development of evidence of thiamin deficiency.

Archives of Pediatrics

Vol. 57, October 1940

*Some conclusions from observations on obese children. J. Bauer.—p. 631.

OBESE CHILDREN. The frequent combination of overweight and overgrowth in children cannot be explained by an excess in food intake. It is due to an individual constitutional factor: the combination of abnormal genes both for obesity and overgrowth. The time of manifestation of those abnormal genes may vary considerably. In exceptional cases the manifestation takes place in fetal life.

British Medical Journal

No. 4162, October 12, 1940

*A review of the causes of diabetes mellitus. G. Graham.—p. 479.

CAUSES OF DIABETES. The evidence reported is in favor of two main causes of diabetes. Either the beta cells are damaged and produce little insulin, or the cells are normal but due to

an interfering substance fail to produce enough insulin. Certain difficulties still remain to be explained.

Canadian Medical Association Journal

Vol. 43, October 1940

*A decade of pediatric progress. A. Brown.—p. 305.
*Essential unsaturated fatty acids in the relief of the common cold. E. M. Boyd and W. F. Connell.—p. 365.
Britain's bread. D. L. Thomson.—p. 370.

PEDIATRIC PROGRESS. A review of the case histories of 1500 infants under one year of age, admitted to the Hospital for Sick Children with infections during the past 3½ years, has shown that only 15% were breast-fed. There were practically no gastro-intestinal diseases in breast-fed babies. The ability of the mother to nurse her baby successfully appears to be almost twice as good in those mothers with a good prenatal diet. Prenatal diet of the mother is an important factor in the development in the first part of life. Progress in knowledge of infant feeding, nutrition in general, blood diseases, pyuria, allergy, endocrines, neurology, psychiatry, and acute infections are discussed. Pediatrics has led the way in preventive medicine.

COLDS. Essential unsaturated fatty acids have no value in the therapy of the common cold.

Child

Vol. 5, October 1940

*Conservation of the medically handicapped child. J. D. Boyd.—p. 91.

MEDICALLY HANDICAPPED CHILD. The chief needs for an adequate program for the medically handicapped child pertain to the provision of skilled personnel, physical equipment, integration of facilities already available, and the development of a positive philosophy of attack. Cooperative effort of the whole community and the state is essential to the best results. Medical service of acceptable nature is usually attainable through some means if provision is made for meeting the cost and if resources are known. Hospital care and cost of medical care must be provided from voluntary contributions or from public funds; also the services of workers especially trained to meet the child's needs—the social worker, the public health nurse, the nutritionist, and the visiting teacher.

Food Research

Vol. 5, September-October 1940

Some factors in the spoilage of an acid canned fruit. C. H. Spiegelberg.—p. 439.
Studies of western tomatoes. G. S. Bohart.—p. 469.
*Vitamin B_1 and vitamin B_2 (G) content of vegetables as influenced by quick-freezing and canning. C. R. Fellers, W. B. Esselen, Jr., and G. A. Fitzgerald.—p. 495.
Effect of level of dietary riboflavin upon quantity stored in eggs and rate of storage. L. C. Norris and J. C. Bauernfeind.—p. 521.

VITAMINS IN VEGETABLES. Fresh asparagus, peas, Lima beans, and spinach were found to contain 65, 133, 67, and 36 I.U. vitamin B_1, and 53, 70, 122, and 145 Bourquin-Sherman units vitamin B_2 (G) per 100 gm., respectively. Asparagus, peas, Lima beans, and spinach retained 78, 97, 46, and 94 per cent of their vitamin B_1 and 95, 100, 84 and 91 per cent of their vitamin B_2 (G), respectively, when quick-frozen; and 72, 60, 28, and 71 per cent of their vitamin B_1, and 98, 100, 70, and 45 per cent of their vitamin B_2 (G) content, respectively, when canned. The length of the blanching period may influence the vitamin B_1 and B_2 (G) content of quick-frozen and canned vegetables. Both quick-frozen and canned vegetables retain nutritionally significant percentages of vitamins B_1 and B_2 (G) and both types of preserved foods are good sources of these two water-soluble vitamins.

Hygeia

Vol. 18, October 1940

*Deadly disease number 9. E. Joslin.—p. 881.
*Meat and meat products.—p. 897.
One dish meals. M. Dartnell.—p. 900.
*Foods that provide vitamin C.—p. 906.
Acid is as acid does. H. M. Fyler.—p. 908.

DIABETES. There will be a million diabetics in this country by 1950 because diabetics are living longer, individuals are growing older and doctors are recognizing cases hitherto undiagnosed. The chief factor in the production of diabetes is heredity. Obesity is a predisposing cause. Insulin, other than prolonging life, allows the patient to consume food similar to his normal diet, but a trifle less rich in sugar and starch.

MEAT. Meat protein is of high biologic value and is digested easily and rapidly. Liver is an excellent source of vitamin A and the B vitamins. Lean pork is one of the best natural sources of thiamin. Traces of vitamin C are present in the blood of meat. Meat may be used in fairly generous amounts with plenty of protective foods to guarantee an adequate diet. Accepted meat and meat products are listed.

VITAMIN C. Man must depend chiefly on fruits and vegetables for vitamin C. Determination of vitamin C by chemical methods is rapid and efficient. The American Medical Association's Council on Foods and Nutrition recommends that foods providing 1000 I.U. vitamin C be included in the diet each day.

Illinois Medical Journal

Vol. 78, October 1940

Newer insulins. T. D. Masters.—p. 319.
*Vitamin therapy in colon and rectal disease. C. J. Drueck.—p. 337.

VITAMIN THERAPY. Patients suffering with chronic intestinal dysfunctions incident to spastic colitis, ulcerative colitis and cancer, are prone to limit their diet to starchy carbohydrates, meats, and tea or coffee. Fruits and vegetables are neglected because of habit, the thought that these articles are expensive, or that they require too much effort to prepare. Vitamins are dissipated more rapidly when metabolism is increased or the body temperature elevated. Specific deficiencies must be considered.

Journal of the American Dental Association

Vol. 27, October 1940

*Chronic endemic dental fluorosis (mottled enamel). D. Clawson, E. S. Khalifah and A. J. Perks.—p. 1569.
Clinical and bacteriologic studies on dental caries. S. F. Bradel and J. R. Blayney.—p. 1601.

DENTAL FLUOROSIS. Chronic endemic dental fluorosis is a water-borne disease associated with the ingestion of toxic amounts of fluorides in the water used for cooking and drinking during the period of calcification of the affected teeth. The best preventive is to change residence or water supply. The use of rain water or distilled water for drinking and cooking purposes solves the problem for individual families. The whole of the Arabian Peninsula, Asia Minor, the Near East, and Mesopotamia is endemic, in scattered sections at least, to mottled enamel.

Journal of the American Medical Association

Vol. 115, October 5, 1940

*Vitamins for war. Editorial.—p. 1198.

Vol. 115, October 12, 1940

*Industrial health and national defense. L. D. Bristol. p. 1235.
*Health information, please. H. N. Calver.—p. 1251.
Causes for rejection for entrance into the regular army due to physical defects. G. E. Leone.—p. 1283.

Vol. 115, October 26, 1940

*Intestinal obstruction. C. P. Schlicke, J. A. Bargen and C. F. Dixon.—p. 1411.
*Hemorrhagic diathesis of the newborn. W. W. Waddell and G. M. Lawson.—p. 1416.
*Climate and military preparedness. C. I. Singer.—p. 1421.
*Human infertility. S. R. Meaker and S. N. Vose.—p. 1426.
*Asthmatic bronchitis. L. Bivings.—p. 1434.
*Contributions of the World War to medicine. J. R. Darnall.—p. 1443.

VITAMINS FOR WAR. England has fortified margarin with vitamin A and restored calcium and thiamin hydrochloride to flour. In peaceful America with its bursting granaries and troublesome problems of overproduction, a large proportion of the diets are poor in vitamins A, D and B_1, and in calcium. Efficiency for prosecution of a war can be increased by the simple expedient of providing a very little more of vitamin B_1 than the public is receiving.

INDUSTRIAL HEALTH AND NATIONAL DEFENSE. The needs of national defense require a strengthening and broadening of the entire industrial health program all along the line from private industry to local, state and federal jurisdictions.

HEALTH INFORMATION. A report of the Visitor Reaction Study taken at the World's Fair health exhibit warrants the following conclusions: People thirst for knowledge about themselves. Those who have this knowledge need study and training in the art of emphasizing this information effectively. A museum of health is effective for mass education. Increased popular knowledge of medical matters will result in increased use of medical service.

INTESTINAL OBSTRUCTION. The results of conservative treatment of simple obstruction of the small bowel and of low grade obstruction of the large bowel were satisfactory. The results of conservative therapy were distinctly unsatisfactory in high grade obstructions of the large bowel, and in certain cases results were disastrous.

HEMORRHAGIC DIATHESIS. Hypoprothrombinemia and associated neonatal hemorrhage will not occur in infants treated with vitamin K through the mother and supplemented by oral administration of vitamin K in the first few days of life. In infants so treated traumatic birth injury has been materially lessened.

CLIMATE. Each climate has its optimal diet. A high fat, high protein, high calorie diet is advisable in cold climates. A high carbohydrate, low fat and protein, low calorie diet is advisable in tropical climates. Menus for an army should vary with the climate in which they are served.

HUMAN INFERTILITY. Deficient nutrition can depress the fertility of laboratory animals but there is little reason to believe that the ordinary mixed human diet often has this effect except in case of too little protein.

ASTHMATIC BRONCHITIS. The problem of treating children with asthmatic bronchitis consists of treating the body as a whole. A generous diet with cod liver oil is suggested.

FOOD DEFICIENCIES AND WAR. The war taught much concerning food deficiencies. Food shortage of the Central Powers was a gigantic experiment in undernutrition. It demonstrated grusomely the harmful effects of undernutrition as exemplified by the sharp increase in the tuberculosis rate and mortality. It showed the beneficial effects of restricted diets in lessening the incidence of diabetes mellitus in the underfed countries. It was discovered that botulism might be caused not only by contaminated meats but by infected vegetables which had been improperly canned.

Journal of Biological Chemistry

Vol. 136, October 1940

*The metabolism of l-xylose. H. W. Larson, N. R. Blatherwick, P. J. Bradshaw, M. E. Ewing and S. D. Sawyer.—p. 1.
*Studies on plasma phosphatase activity in relation to fat metabolism in rats. L. Weil and M. A. Russell.—p. 9.
*Studies in mineral metabolism with the aid of artificial radioactive isotopes. V. The absorption, excretion, and distribution of labeled sodium in rats maintained on normal and low sodium diets. D. M. Greenberg, W. W. Campbell and M. Murayama.—p. 35.
*A new dietary essential for the mouse. D. W. Woolley.—p. 113.
*Factors affecting the concentration and distribution of nicotinic acid in the blood. D. Melnick, W. D. Robinson and H. Field.—p. 157.

METABOLISM OF L-XYLOSE. The feeding of l-xylose to rats increased significantly the nonfermentable reducing substances of the liver, kidney, and blood, but failed to increase the glycogen content of the tissues; l-xylose is very poorly absorbed from the gastro-intestinal tract.

PHOPHATASE AND FAT METABOLISM. Plasma phosphatase activity of albino rats was found to be greatly reduced by fasting. Ingestion of carbohydrates and proteins did not increase this. An increase in low plasma phosphatase activity produced by fasting resulted only from the ingestion of certain types of unsaturated fatty acids, wherein a certain molecular magnitude, the double bond in the carbon chain, and the free carboxyl group are essential.

METABOLISM OF SODIUM. Radioactive sodium administered to fasted rats as sodium chloride is absorbed from the gastro-intestinal tract even more rapidly than potassium. Animals on a diet low in sodium retained a larger fraction of the administered sodium than those on an adequate sodium intake. The absorbed sodium is very rapidly distributed throughout the fluids and tissues of the body so that a maximum of specific accumulation is already reached in most cases within about 10 minutes. The specific accumulation then persists for many hours at a constant level.

ANTIALOPECIA FACTOR. When fed a ration of sucrose, purified casein, salts, cod liver oil, corn oil, yeast extract, thiamin, riboflavin, vitamin B_6, nicotinic acid, pantothenic acid, choline, and

b-alanine, young mice soon cease to grow, and become completely hairless over the trunk. Hair may be restored by feeding certain fractions of liver extract. The active substance in these fractions has not been identified with any previously described vitamin.

NICOTINIC ACID IN BLOOD. Approximately 90% of the total blood nicotinic acid is in the corpuscles. In anemic blood samples the corpuscular nicotinic acid concentration is sufficiently high for the whole blood values to tend to remain in the normal range. In polycythemic bloods, there is a passive increase in the whole blood values due simply to the greater number of cells. A recently ingested meal, coffee drinking, and smoking do not affect appreciably the blood nicotinic acid values.

Journal of Nutrition

Vol. 20, October 1940

*The intravenous administration of crystalline amino-acids to infants. A. T. Shohl and K. D. Blackfan.—p. 305.

*Fat as a factor in the healing of rickets with vitamin D. A. Knudson and R. J. Floody.—p. 317.

*The determination of ascorbic acid in evaporated milk, powdered milk and powdered milk products. W. W. Woessner, C. A. Elvehjem and H. Schuette.—p. 327.

*The composition of gains made by rats on diets promoting different rates of gain. M. Pickens, W. E. Anderson and A. H. Smith.—p. 351.

*The influence of fat on calcium and phosphorus metabolism. J. H. Jones.—p. 367.

*The influence of dietary riboflavin on the content of this vitamin in chicken tissue. A. Z. Hodson.—p. 377.

*The comparative assimilation of fluorine by growing rats during continuous and intermittent dosage. M. Lawrenz, H. H. Mitchell and W. A. Ruth.—p. 383.

The prevention and cure of nutritional muscular dystrophy in the rabbit by alpha-tocopherol in the absence of a water-soluble factor. C. G. Mackenzie, M. D. Levine and E. V. McCollum.—p. 399.

CRYSTALLINE AMINO-ACIDS. In infants, positive nitrogen balances of the same degree were obtained by intravenous administration of similar amounts of a crystalline amino-acid mixture and casein hydrolysate; when large amounts were given a febrile reaction resulted. For successful intravenous nutrition not only must adequate nitrogen and calories be supplied, but the administration should be continuous. With adequate fluid, glucose and sodium chloride, 0.5 gm. N/kg./day given intravenously to a normal infant, will result in satisfactory nitrogen retentions for short periods of time.

FAT AND VITAMIN D ACTION. A study of 7 rats showed that the addition of 5% fat to the rachitogenic diet gave a much better healing with a known amount of vitamin D than with no fat in the diet. With the addition of 10 or 20% fat, the healing of rickets by vitamin D was less than with 5% fat, but greater than was obtained with no fat. Replacement of all the calcium carbonate in the diet by an equivalent amount of calcium in the form of an oleate or stearate, resulted in better healing. Replacement of only one-fourth of the calcium carbonate did not result in any appreciable difference in the healing with vitamin D.

ASCORBIC ACID IN MILK PRODUCTS. Analyses of 41 evaporated milks and 9 powdered milks reveal that the ascorbic acid content of powdered milk is roughly that of evaporated milk; that average American evaporated milk supplies 25% of the quantity of ascorbic acid found in freshly drawn cow's milk; that the metallic nature of the manufacturing equipment is not the limiting factor which determines the ascorbic acid content of evaporated milk.

CHEMICAL COMPOSITION OF BODY GAINS. Chemical analyses of a large group of rats maintained at different rates of growth and weight gain showed that during early growth gains were rapid and contained a preponderance of protein over fat, while later gains were made considerably more slowly and were accompanied by the accumulation of large quantities of fat. Stunted animals during early life, when gains were slight, added much more protein than fat; after realimentation when their most rapid increase in weight took place at a rate greater than that of the heavier groups of the same age, these animals added considerably more fat than previously. No single generality relates rate of growth and composition of gains, but other factors such as age and nature of the diet appear to influence the composition of the gains.

FAT AND METABOLISM OF CALCIUM. Lard when added to synthetic rachitogenic diets in amounts varying from 5 to 25% had definite antirachitic properties which were not associated with the non-saponifiable fraction. The effect of lard was less pronounced on diets very low than on diets higher in phosphorus. Oleic acid increased calcification but sodium oleate and the

calcium soaps of lard showed no antirachitic action.

RIBOFLAVIN IN CHICKEN TISSUE. The amount of riboflavin in the diet has a marked effect on the riboflavin content of the tissues of chickens, being 2 to 4 times as great in chickens fed an excess of riboflavin as in chickens on a riboflavin-deficient ration. Of the tissues examined, liver proved to be richest in riboflavin content; heart, then gizzard and leg muscle were next and were about equal in value; breast muscle was poorest of all.

FLUORINE. The continuous administration of fluorine as synthetic cryolite to growing animals results in a greater retention of fluorine in the bones, and possibly in the teeth, than intermittent administration. In practical human nutrition the physiological effects of a given dosage of fluorine in spray residues on fruits or vegetables may be expected to be less than that predicted from experiments involving the continuous administration of fluorine.

Journal of Pediatrics

Vol. 17, October 1940

*An evaluation of enzyme treated milk in infant feeding. M. L. Blatt, E. H. Harris, H. M. Jacobs and M. Zeldes.—p. 435.

*Prothrombin in the newborn infant. Relationship to the maternal dietary vitamin K intake. S. Kave and H. Siegel.—p. 448.

*Recurrent vomiting in children. The factor of food hypersensitiveness. J. H. Fries and K. G. Jennings. —p. 458.

A study of the nutritional and physical status and the response to exercise of 16 negro boys 13 to 17 years of age. F. W. Schultz, M. Morse, D. E. Cassels and L. V. Iob.—p. 466.

*Experience with benzedrine sulfate in the management of obesity in children. R. H. Kunstadter.—p. 490.

*The relation of vitamin D intake to the age of the infant at the time of eruption of the first deciduous incisor. T. D. Speidel and G. Stearns.—p. 506.

Play investigation and play treatment of children's behavior disorders. L. Kanner.—p. 533.

ENZYME TREATED MILK. The addition of a pancreatic proteolytic enzyme to raw milk reduces the curd tension and forms a soft-flocculent, finely divided curd which does not tend to agglomerate. Newborn, premature, and normal infants tolerate enzylac well, develop normally and have less diarrhea and infection of the upper respiratory tract than those in a like environmental situation on control milks.

PROTHROMBIN IN NEWBORN INFANT. A study of the dietary history of 68 mothers failed to reveal any correlation between the maternal dietary vitamin K intake and the prothrombin concentration of the offspring. Food sources cannot be depended upon to assure adequate prothrombin levels in the newborn infant. Vitamin K concentrates given to the mother before labor assure elevated prothrombin levels in the newborn infant.

RECURRENT VOMITING. Recurrent or cyclic vomiting in children may be the gastro-intestinal manifestation of food hypersensitiveness. Six illustrative cases are presented.

BENZEDRINE SULFATE IN OBESITY. Benzedrine sulfate was administered to 30 obese children between 2½ and 16 years of age who failed to lose weight on a prescribed reducing diet. The average weekly weight loss of 26 who received continuous treatment for over 2 weeks was 0.831 lb. per week. Weight loss was primarily due to loss of appetite with subsequent decrease of food intake. Benzedrine sulfate is not a panacea.

VITAMIN D INTAKE. Ages at eruption of the first deciduous lower central incisor of groups of healthy infants with carefully controlled diets having relatively low, intermediate, and high amounts of vitamin D were compared. The incisors of 22 infants given the intermediate vitamin D intake, from 300 to 400 units daily, showed the earliest mean age at eruption, 24.68 weeks. The response of dental eruption to variation in vitamin D intake tends to parallel the responses of linear growth and mineral retention.

Medical Officer

Vol. 64, October 26, 1940

The national health in wartime: a survey by the minister of health.—p. 141.

Military Surgeon

Vol. 87, October 1940

*Allergy in military medicine. F. G. Crandall.—p. 337.

ALLERGY. Surveys show that approximately 10% of the general population are major allergics. In a wartime army of 4 million, 400,000 will be major allergics. Hay fever and asthma cases are accepted during wartime but rejected

in times of peace. Eighty to 95% of allergics properly treated are cured or greatly improved.

Pennsylvania Medical Journal

Vol. 44, October 1940

Diabetes: VI. Diabetic diets and eating habits of nationalities. A. L. Luchi.—p. 41.

Public Health Nursing

Vol. 32, October 1940

*How early should dental care begin? E. W. Morris.—p. 584.

EARLY DENTAL CARE. Important factors in building sound dental health during the antepartum period, infancy, and the preschool period are discussed. The use of candy, sugar freely, jam, jellies, pastries, chewing gum, and pop or soda has no place in the diet and is associated with dental decay.

Public Health Reports

Vol. 55, October 25, 1940

*The relation of body build to drug addiction. R. R. Brown.—p. 1954.

BODY BUILD AND DRUG ADDICTION. A study of 400 native, white male drug addicts showed them to be average or slightly superior in height and weight. There was an average gain in weight of a little more than 3 kg. after 5½ months of institutionalization.

Puerto Rico Journal of Public Health and Tropical Medicine

Vol. 16, September 1940

Nutritional studies on foodstuffs used in the Puerto Rican dietary. VII. A comparative study of the nutritive value of three diets of frequent use in Puerto Rico. D. H. Cook, J. H. Axtmayer and L. M. Dalmau.—p. 3.

Science

Vol. 92, October 4, 1940

*A new factor of the vitamin B complex required by the albino mouse. E. N. Morris and J. Hauschildt.—p. 316.

NEW FACTOR REQUIRED BY MOUSE. The nutrition of the mouse differs markedly from that of the rat. Mice require a water-soluble factor other than thiamin, nicotinic acid, pyridoxin, riboflavin and the "filtrate factor". This factor is present in yeast and liver.

Southern Medical Journal

Vol. 33, October 1940

*The genesis of pellagra. S. Harris.—p. 1044.
*Some of the uses of vitamin B_1 in neurology and psychiatry. J. A. Willie.—p. 1056.
*Night blindness and vitamin A deficiency in pulmonary tuberculosis. R. Harris and J. S. Harter.—p. 1064.
Remarks on modern diabetic therapy. A. A. Herald.—p. 1068.

GENESIS OF PELLAGRA. Recent experimental and clinical studies on the relation of avitaminosis to pellagra have been productive of important advances in the knowledge of the etiology and treatment of the disease. Laboratory and clinical investigations on the primary causes of nicotinic acid deficiency should be continued.

VITAMIN B_1 IN NEUROLOGY. Vitamin B_1 is an important therapeutic substance, the full scope of whose usefulness in neurology and psychiatry has not yet been defined. If the dosage used is inadequate, or if it is administered for too short a time, patients will be deprived of benefit. In most instances a multiple vitamin deficiency is present.

NIGHT BLINDNESS. Practically all tuberculous individuals are vitamin A-deficient, whether as a cause of tuberculosis or an effect is not known.

INSTITUTION MANAGEMENT

Buildings and Building Management

Vol. 40, October 1940

Space for air-conditioning. G. H. Watson.—p. 26.
*Improving the water service.—p. 28.
Automatic sprinkler systems.—p. 35.
*What's new in materials and equipment?—p. 56.

Vol. 40, November 1940

Rewiring a building economically.—p. 24.
How to cut operating costs. T. F. Egan, Jr.—p. 26.
Air-conditioning 22 floors. J. I. Hill.—p. 34.
A study of Venetian blinds. R. B. Beach.—p. 39.
*Reducing the fuel bills. L. Krafft.—p. 42.
*Planned for sales appeal.—p. 46.

BETTER WATER SERVICE. Three maintenance hints dealing with hot water circulation, poor flow of water, and pipe corrosion based upon copyrighted service bulletins prepared by staff

engineers of Water Service Laboratories, Inc., New York.

NEW MATERIALS—EQUIPMENT. Describes new Premier Commercial Vacuum Cleaner designed to make vacuum cleaning a simple matter in hard-to-reach places. Fir-Tex, a fire retardant insulating board-lath is a compound of felted wood fibers mixed with microscopic flakes of expanded vermiculite which underwriters' tests reveal will delay spread of fire to adjacent parts of the same building at least one hour. A new low cost humidifier, operating on the same amount of current as a wall bulb, is now marketed by Fairbanks Morse & Co.; it features automatic humidification, gentle circulation at about 150 cubic feet per minute, purification of air by washing and removing particles of smoke, dust and pollen, absorption of odors, and a device to infuse the air with disinfectants. The Scott Paper Co. has two new towel dispensers made of bakelite and resinox, which do not rust, and shed water, resist acids and alkalies, are non-inflammable, have permanent black color, cannot chip, are cleaned easily, and present no maintenance problems. The new Goodyear Tu-tone Rubber Rug is a protective floor covering for installation where foot traffic is heavy, especially valuable as permanent or temporary floor coverings for lobbies, entrances, corridors, hallways, runner over carpets, or as bases for stairways, landings, doorways, and elevators, and available in two-tone color effects—black, red, or green—in rolls 30′ long and 54″ wide.

FUEL. Program of improvements considers physical condition of the heating system, the building, type of system, equipment, ingenuity and intelligence of the janitor and the careful buying of fuel on a volume basis to effect a substantial saving in heating costs.

SALES APPEAL. Modern New York apartment building provides many new innovations: glass panelled entrance doors controlled by an electric robot, fluorescent lighting in public corridors, use of light weight, colored steel bathtubs with corrugated bottoms, dining balconies separated from living rooms by ornamental iron railings, small dressing rooms if bedroom omitted, large corner casement windows with enclosed convector radiators located beneath the windows, special air-conditioning electrical outlet in each apartment, servidor apartment entrance doors, and elevator taxi signal buttons.

Consumers' Guide

Vol. 7, October 1940

*What's happened to meat prices?—p. 2.
*"Lunch is ready" in Kent County.—p. 3.
*Milk glossary for consumers.—p. 8.
*Pointers on vacuum cleaners.—p. 12.
*Lard gets a standard.—p. 14.
*Your food supplies and costs.—p. 15.

MEAT PRICES. A review of this year's unusual increases in the retail price of most kinds and cuts of fresh meats includes comparison with last year's prices for beef cuts, fresh pork, smoked pork and lamb. Quality grades of beef and cuts of beef are the two most variable factors to guide the consumer's choice.

SCHOOL LUNCHES. The installation of a school lunch program in Kent County, Maryland, has materially reduced illness and underweight and contributed to the improvement of farm gardens and more canning for winter use. Parents, teachers and children all help in the planning, production, serving and clean-up involved in the nutritious and cheap hot dish program. This year additional products from the Surplus Marketing Administration will supplement the menu.

MILK GLOSSARY. An enlightening explanation of milk and its by-products and terms related to milk production, answers clearly many consumer questions about such topics as base surplus, butterfat, buttermilk, casein, raw milk, cheeses, care of milk, the Bureaus of Animal and Dairy Husbandry, and others. A helpful chart shows how to compute the extra cost for extra butterfat content in grades of milk.

VACUUM CLEANERS. Important points to consider before buying a vacuum cleaner, with illustrations. With intelligent purchasing and reasonable care a vacuum may be bought and run for less than 50 cents a month.

LARD STANDARDS. New standards of identity for lard have recently been set forth to differentiate between lard and the lower grade product now to be called rendered pork fat. The new compulsory lard standards are another step toward more informative labelling.

FOOD SUPPLIES. The outlook for 1940-41 food supplies and costs, including eggs, meats, fats and oils, cereals and bakery products, fruits and vegetables, and dairy products, graphed in relation to the expected supplies.

Food Industries

Vol. 12, October 1940

•When is "cleaned" equipment really clean? M. E. Parker.—p. 39.
X-rays put clincher on quality control.—p. 43.
•Progress made in gas storage of fruits, vegetables. H. H. Plagge.—p. 46.
•Floodlighting your factory to prevent sabotage.—p. 49.
Industrial dermatitis—it costs you money.—p. 51.
•What's happening with soybeans? G. W. McBride.—p. 55.
How to get rid of rats. E. Hardy.—p. 58.
Digest of A.M.S. standards for canned fruits.—p. 61.
•Gift packages give lift to sales. I. C. Miller.—p. 64.
Food equipment news.—p. 88.
•Adequate pasteurization prevents curd formation in canned grapefruit juice.—p. 96.
•Eyes in Swiss cheese.—p. 98.
•Soft-curd milk prepared by homogenizing.—p. 98.
•Better tuna refrigeration.—p. 99.
•Sedimentation in fruit juices.—p. 100.
•Fumigating cereals.—p. 100.
•Canadian Wiltshire bacon.—p. 101.
•Vitamin A in fish liver oils.—p. 101.
•Vitamin C in grapefruit juice.—p. 102.

Vol. 12, November 1940

•Organizing research for profit. T. M. Rector—p. 29.
•Basic plant operations improved. R. G. Engel.—p. 32.
32 inventions needed by the food industries.—p. 35.
•It pays to advertise safety.—p. 36.
200 tell what they prefer in pickle sweeteners. R. G. Switzer and F. W. Fabian.—p. 38.
•Seven ways to be wrong in factory lighting. D. M. Warren.—p. 41.
•Makes "olive oil" from corn.—p. 49.
Treated spices reduce spoilage. H. W. Smith.—p. 50.
Effects of storage on microbial content of spices. H. W. Smith.—p. 52.
New container upsets precedent.—p. 53.
•Vinegar an enemy to molds.—p. 84.
•Knowing the why of quality.—p. 84.
•Bacteriology of ice cream.—p. 84.
•Chinese celery cabbage for calcium.—p. 86.
•Preparation of papain.—p. 86.
•Soybean flour.—p. 87.

CLEAN EQUIPMENT. Research on washing of milk cans has shown that undesirable bacterial decomposition may continue in cans which are "physically dry, clean and hot." A final rinse with acidulated sterilizing steam destroys the invisible alkaline film of cleaning solution along the sides of the cans, and leaves them in a desirable condition of acid reaction. Indicates the need of increased attention to all equipment and utensil cleaning practices.

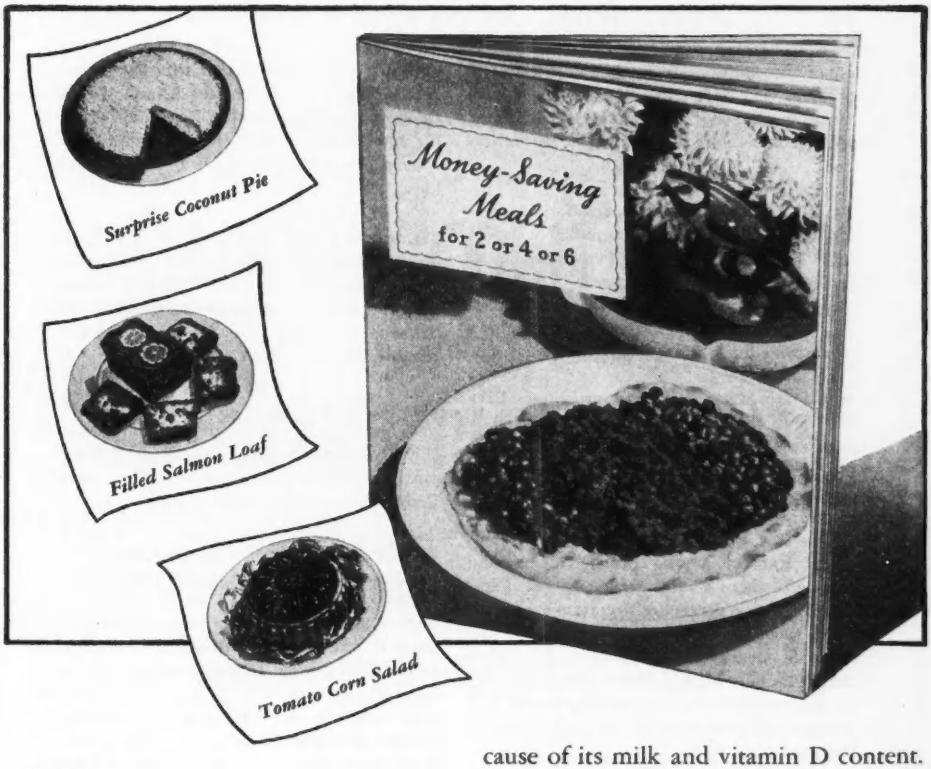
PERISHABLE FOOD STORAGE. In the use of gas storage for fruits and vegetables as compared with cold storage in air, ripening is considerably slowed down and storage life correspondingly lengthened, mealiness and decline in flavor is postponed, and original color is preserved for a longer period. Reduction of costs accompanies the improvement in quality. This comprehensive review of progress in perishable food storage, stresses the need of standardization of building materials and methods used in storage units and research on optimal gas mixtures to maintain a certain carbon dioxide oxygen ratio in the sealed storage room.

SABOTAGE PREVENTION. Boundary fences and floodlighting of industrial plants at night are the first and best means of defense against sabotage. Vulnerable spots needing particular attention are narrow alleys, entrances to the yard and important buildings, dead-end streets, shrubbery, and spaces along railroad tracks. Includes a diagram of a typical plant with location, direction and types of floodlights.

SOYBEAN INDUSTRY. The great increase in soybean production, with accompanying increased production of soybean oil and by-products, is based on real demand and directly affects all other food industries. Acreage planted in soybeans in 1940 was 14% greater than in 1939.

ATTRACTIVE PACKAGING. Attractive and appealing new packaging materials have greatly increased sales not only of confections but of such commonplace foods as ham and celery. Illustrations emphasize the sales appeal of packaging to induce "purchase-for-gifting."

CURD PREVENTION. Pasteurization temperatures of 180-190°F. are necessary to prevent formation of white rings at the head space line as well as curd-like deposits and abnormal sedimentation in canned grapefruit juice. Time and temperature are the important factors in preventing curd development, whether flash sterilization, vacuum closure or heat treatment in the can is used. Although these defects



"Money-Saving Meals for 2 or 4 or 6" —the new Pet Milk cookbook contains 70 tested recipes for dishes which include just as much milk as possible, yet have proper appearance, flavor, consistency and texture. These recipes can be most helpful in putting the "quart of milk a day," generally recommended by nutritionists, into appetizing, delicious food that is more wholesome because of its milk and vitamin D content.

By using Irradiated Pet Milk, pure, safe, double-rich, it is possible easily to put extra amounts of whole milk solids and vitamin D into food that appeals to the eye—to the tongue—is more wholesome and nourishing—and, at the same time, costs less.

Irradiated Pet Milk, with its extra vitamin D, still costs less generally than ordinary pasteurized milk—much less than coffee cream—far less than whipping cream.

PET MILK COMPANY, 1450a Arcade Building, St. Louis, Missouri

Please send me, *free of charge*, "Money-Saving Meals—for 2 or 4 or 6"

I teach (*subjects*)_____ in _____ school (*grade*)

*Name*_____ *Address*_____

*City*_____ *State*_____

(*Fill in completely. Offer limited to residents of Continental U. S.*)

(In writing to advertisers, please mention the journal—it helps.)

usually become apparent within 3 months after packing, time is an essential factor in curd formation, and short time storage samples may not reliably indicate the adequacy of pasteurization.

SWISS CHEESE. Three lactic acid-forming bacteria are responsible for the formation of "eyes" in Swiss cheese. Following two stages of enzyme action, the ripening cheese undergoes a true fermentation in which the "eyes" (bubbles of CO_2) are formed. Calcium lactate has been found to be the nutrient for this fermentation.

SOFT-CURD MILK. Two new procedures have been developed to obtain a soft-curd whole milk from which cream can still be separated. One method entails homogenizing skim milk and cream separately so that the fat is not too finely dispersed for separation.

TUNA REFRIGERATION. Initial chilling and storage of fish on tuna boats must be differentiated as two distinct refrigeration operations which should be conducted independently. To maintain quality and freshness, fish when caught must be chilled immediately in brine at storage temperature, and then transferred to a storage well with temperature maintained at not more than 20°F.

FRUIT JUICE SEDIMENTATION. The reaction between protein and pectin in fruit juices may cause permanent precipitates under certain conditions. For sedimentation or other forms of deterioration of bacterial origin, filtration through a specially prepared asbestos pulp has been found effective.

GRAIN FUMIGANTS. Most fumigants—carbon disulphide, chloropicrin, ethylene oxide, and finely powdered silica—for killing insect pests in grain and flour have certain limitations which must be considered in a choice for use, such as extreme inflammability, high toxicity to workmen, or damage to germinating quality of the grain. Hydrogen cyanide, however, has been found to be satisfactory enough to partly offset its high unit cost.

CANADIAN BACON. Canadian Wiltshire bacon owes its characteristic color to the formation of nitrosohemoglobin from nitrite and muscle hemoglobin. Studies on the effect of heat treatment on nitrite content indicate that cooking and smoking at temperatures above 130°F. convert the nitrosohemoglobin to a more stable form.

VITAMIN A. Fish liver oils vary greatly in vitamin A content, the maximum being 2500 greater than the minimum. Shad liver oil, eagle ray, weakfish and gilthead liver oils are far richer in vitamin A than the U. S. Pharmacopeia requirement for cod liver oil.

VITAMIN C. Studies made on the ascorbic acid content of fresh and canned grapefruit show only a 20% loss of vitamin C potency through canning. Subtropical regions of the Soviet Union now claim grapefruit as a new crop.

PROFIT. Six fundamentals intelligently applied enable food manufacturer to obtain cash returns on his expenditures for research. These are capable top management, a policy defining the scope and financial limitations, fine personnel, necessary tools, and capable management and research administration. If a research department improves and introduces new products, its value is greater than the cost of the research. Illustrations depict steps in coffee research and jellies in the Research Laboratories of General Foods.

PLANT OPERATIONS IMPROVED. The California Walnut Growers Association has made handling, sorting, separating and inspecting processes more efficient and economical by initiating new methods and installing new equipment. Improvements were based upon critical analysis of old, accepted ways of performing the various operations, including time studies of the workers. Effective illustrations depict improvement in several unit operations common to food plants.

ADVERTIZE SAFETY. Accidents, in food plants primarily, are caused by abstractions, improper attitudes and recklessness, according to National Safety Council. Illustrated posters are effectively used in directing attention to hazards and promoting a general safety policy.

Here's good news for dietitians:

★

KELLOGG'S CORN FLAKES

AND

KELLOGG'S RICE KRISPIES

★

may be served freely on

WHEAT-FREE ALLERGY DIETS!

★ Sugar, salt and malt flavoring is cooked into these two crisp, delicious ready-to-eat cereals during the process of manufacturing. No wheat is present.

The Home Economics Department of the Kellogg Company, Battle Creek, Michigan, has prepared a special set of wheat-free recipe cards for dietitians to use in preparing allergy diets. Write today for your *free* set.

Copr. 1941 by Kellogg Company

(In writing to advertisers, please mention the journal—it helps.)

LIGHTING. The right amount of light results in fewer accidents, improved quality of work, decreased production costs, reduced spoilage and greater profits. Excellent illustrations graphically emphasize why lighting problems center around the need for uniformity, control of shadows, use of shields, intelligent local and general lighting, use of proper lighting units, and correct voltage and consistent cleanliness of lights.

OLIVE OIL FROM CORN. New patented process promises to make this country independent of imported olive oil and to increase the consumption of corn oil 40%. Through infusion the odor and flavor of olive oil is imparted to highly refined, odorless, tasteless corn oil, and between 30 and 40 times as much "olive-flavored oil" as the usual amount of olive oil can be extracted from the olives used in the process.

VINEGAR VS. MOLDS. Acetic acid in vinegar is toxic to organisms. Tests made on common food organisms in varying strengths of acetic acid both in the presence and absence of salt brine or sugar syrup reveal the *p*H of the solution as the underlying factor in the toxic action.

DAIRY PRODUCTS. In the annual competition for judging dairy products, it was found that students who score well are not necessarily able to state why the sample lacks perfection. But students who knew what was wrong with the product could usually give a more accurate grade.

BACTERIAL TESTS FOR ICE CREAM. The Burri smear culture technique for investigating numbers and distribution of bacteria in milk and butter has been successfully used in bacterial examination of ice cream. Generally the Burri count is higher than the plate count, but since plate counts are not numerically accurate as to numbers of individual organisms the differences are not surprising. The Burri technique is particularly important in tracing contamination caused by use of unsanitary dippers and packages since it gives data concerning distribution of bacteria.

CALCIUM. Chinese celery cabbage is rich in calcium, good available carbohydrate and crude fiber, high quality protein, and a good source of vitamin C. Tests show calcium intake doubled and calcium retention improved in test animals when this cabbage is fed. Dried celery cabbage is recommended for use in nutritionally deficient nations.

PAPAYAS. Latex from green papayas contains papain, an enzyme which assists in hydrolysis of proteins. Its activity is measured by observing its potency in clotting milk or by measuring the rate at which enzyme digests casein. Studies are being made to discover whether the enzyme can be profitably extracted by mechanical methods from the whole papaya plant, since the latex in the green fruit contains a substance which destroys the enzyme or inhibits its activity.

SOYBEAN FLOUR. Steam distillation and germ removal milling processes eliminate the bitter, beany flavors and stabilize the finished whole soybean flour against deterioration. Soybean flour improves the texture, keeping qualities and brightness of crust of ordinary white bread, serves as a valuable binder in sausage manufacture, and is recommended for use in preparation of special dietary food products because of its emulsifying properties, vitamin B, iron and copper content.

Horwath Hotel Accountant

Vol. 20, October 1940

The hotel restaurant.—p. 2.
*According to Horwath and Horwath.—p. 8.

Vol. 20, November 1940

*What the public eats and drinks.—p. 2.
*What the table d'hote dinner patron eats and drinks.—p. 5.

CLEANING COST. Thirty hotels, ranging from 150 to more than 2000 rooms, recorded average expenditures per available room per year as: soaps, $1.58; soap powders and scouring powders, $3.25; acids and laundry supplies, $1.44; brushes, brooms, mops, etc., $.74; metal and furniture cleaners, waxes, polishes, etc., $.48; or a total of $7.49 per available room per year for cleaning materials and supplies.

FAVORITE FOODS. Table d'hote dinner menus in a dozen principal transient hotels in various cities and sections of the country show an

YOU'LL LIKE THESE—

BANANA BRAN MUFFINS

IT'S SMART to vary your daily hot breads with something different—something as special and popular as Banana Bran Muffins. Here's a fresh fruit muffin that's good morning, noon, or night—a muffin that tastes good hot or cold, and keeps moist and fresh for hours. These Banana Bran Muffins are easy to make and fit especially well into the institutional menu. Try them and mail the coupon for other original recipes!

BANANA BRAN MUFFINS

Amount for 1 muffin: 2¼ ounces mixture	6 dozen muffins 10 pounds 2 ounces mixture		15½ dozen muffins 26 pounds 10 ounces mixture	
INGREDIENTS	**AMOUNTS OR WEIGHTS**	**COST**	**AMOUNTS OR WEIGHTS**	**COST**
Flour	2 pounds		5 pounds	
Soda	1 ounce		2½ ounces	
Salt	1 ounce		2½ ounces	
Sugar	14 ounces		2 pounds 3 ounces	
Bran	2 quarts		5 quarts	
Eggs	8		1 quart	
Sour milk or buttermilk	½ pint		1¼ pints	
Melted shortening or oil	8 ounces		1 pound 4 ounces	
Bananas*, peeled	4 pounds 8 ounces		11 pounds 4 ounces	

*Use all-yellow or fully ripe bananas

Sift together flour, soda, salt and sugar. Add bran and mix well. Beat eggs well. Add milk and shortening and blend. Add bananas, beating only enough to break them into small pieces. Add flour mixture, mixing only enough to dampen all flour. Turn into well-greased muffin pans and bake in a moderate oven (375° F.) 30 to 35 minutes, or until muffins are done.

Send for FREE Quantity Recipes

FRUIT DISPATCH COMPANY, Home Economics Dept., Pier 3, North River, New York City

Please send me free, tested banana recipes, in quantity proportions, printed on handy 4 x 6 file cards.

Name_____

Address_____ City_____ State_____

UNITED FRUIT BANANAS *distributed by* **FRUIT DISPATCH COMPANY**

JADA-141

(In writing to advertisers, please mention the journal—it helps.)

average of 12 main courses from which to select. Menus avoid foreign terms and attempt to describe dishes clearly. Steak, chicken, roast beef and fish represented popularity sequence of main courses; seafoods most popular appetizer, with fruits, and fruit or vegetable juices next; ice cream ranked first as a dessert with pie second.

TABLE D'HOTE DINNER PATRONS. Menus and charts reproduced from 12 hotel dining rooms located in 10 cities and 9 states show the table d'hote selections for a given day in September. Analysis of individual combinations ordered shows the price exerts a definite influence on selection. Separate statistics for beverages and dessert orders are given. Information includes the location of the hotel, number of rooms, temperature, number of dinners, average room rate, weather, average food cost, main courses listed, price of full meal, and the ratio of meals to total number of main courses offered on the menu.

Hospital Management

Vol. 50, September 1940

*How can the hospital render better care to the diabetic patient. W. R. Tobin.—p. 49.
*Waste checkers. M. E. Golder.—p. 50.

Vol. 50, October 1940

Diets and management of personnel topics of discussion at dietetic section. L. F. Cooper.—p. 53.
Pineapple on the hospital menu. D. Duncan.—p. 56.

BETTER CARE FOR THE DIABETIC PATIENT. Outlines a plan worked out by a committee of Chicago physicians to aid in correcting some of the shortcomings in treatment of the diabetic.

WASTE CHECKERS. Charts which reduce breakage and waste, depict dishes, glass and silver, with cost of each, and methods used in controlling waste in fuel and laundry, as well as food.

Hospitals

Vol. 14, October 1940

*Training of employees. G. J. Sherrard.—p. 85.
McGill monthly price index for hospitals.—p. 97.

Vol. 14, November 1940

*Supply service and efficiency control. C. F. Wilinsky.—p. 38.
*Colorado's new hospital for the mentally ill. R. C. Taylor.—p. 85.
Are special diets overdone? M. R. Curfman.—p. 89.

TRAINING OF EMPLOYEES. Discussion of methods of training and handling of employees, with particular emphasis on proper selection of employees, specific requirements of a job, interviewing, necessity for informing employees of policies and practices, and requirements of employees' training. Estimates indicate that it costs from $25 to $200 to hire and train a new employee for his job.

SUPPLY SERVICE. Sound business methods in connection with the purchase, control, and issuance of hospital supplies promote efficiency and economy. Discussion is centered on the store-room, receiving and issuance of supplies, and requisitions.

NEW HOSPITAL. Describes food transportation and cafeterias in Colorado's new hospital for mental patients. Illustrations depict new heavy duty fixed and movable kitchen equipment installations.

Hotel Management

Vol. 38, October 1940

*Approximate shipping season of fresh fruit by state of origin.—p. 26.
Ideas for new menu covers.—p. 27.
Modern sales promotion—advertising and publicity.—p. 28.
*Meat and fruit plate specials.—p. 32.
Casserole cookery.—p. 36.
*Fruit plates.—p. 38.
*Good food hints. L. P. DeGouy.—p. 40.

Vol. 38, November 1940

When holidays are profit days.—p. 15.
Yours for better selling to increase holiday profits. R. Letsch.—p. 16.
*50 fundamentals for managers. F. J. Wiffler.—p. 18.
*How alcoholic beverages may be sold in hotels.—p. 19.
*Only twenty-five cents to spend for lunch. B. L. Griem.—p. 24.
*Modern pie cost chart. A. Easton.—p. 26.
*Salads that sell well.—p. 32.
Equipment news for November.—p. 40.

FRUIT SHIPPING SEASON. Chart depicting approximate shipping seasons of fresh fruit by state of origin for apples, cantaloupes, cherries, cranberries, grapefruit, grapes, lemons, oranges, peaches, pears, plums and prunes, strawberries and watermelon.

why . . . would you buy regular luggage, if you could buy *heavy-duty* luggage at no extra cost? Ask yourself that same question about tires, or carpet, or pots and pans. The answer is the same — when you want maximum service and safety from a product, you buy *heavy-duty!*

Now you can buy *heavy-duty* hydrogenated shortening, made from the finest vegetable oils, at no extra cost.

Heavy-duty MFB is powered for the machine punishment any shortening must face today. YET IT'S SO DELICATE AND BLAND IN FLAVOR THAT IT CAN BE USED IN YOUR FINEST SAUCES, ICINGS AND PASTRIES. In fact, for all-around cake baking or wherever you want an easily digestible fat, use *heavy-duty* MFB.

Why buy even a first-grade hydrogenated shortening when you can buy *heavy-duty* MFB at no extra cost?

•

Technical assistance is available to help you work out specific problems. If you wish to test new *heavy-duty* MFB, write Shortening Headquarters, 21 West St., New York City, for a generous sample.

SHORTENING SHQ HEADQUARTERS

WESSON OIL & SNOWDRIFT SALES CO.

NEW YORK · CHICAGO · SAVANNAH · NEW ORLEANS
SAN FRANCISCO · MEMPHIS · HOUSTON

PLATE SPECIALS. Photographs of attractively arranged meat and fruit plate specials, and ideas for garnishes.

FRUIT PLATES. Photographs and descriptions of favorite fruit plate combinations from California and Washington use fruits in season, at point of perfect ripeness and thoroughly chilled. Fruit plates should be made to order, accompanied with finger sandwiches, nut bread or Melba toast.

FOOD HINTS. New ideas for garnishes, hints for cooking roasts and fish, stuffings, service of breakfast toast, bacon and eggs, and what to do with left-over fruit juices.

FUNDAMENTALS FOR MANAGERS. A list of 50 fundamentals for hotel managers. The qualities of personality and character and policies and methods are reviewed.

ALCOHOLIC BEVERAGE SALES. A comprehensive chart recently corrected shows how alcoholic beverages may be sold in hotels, restaurants and clubs, according to state laws. Specific information regarding each state includes place of sale, with or without meals, room service, bars, and whether wines and liquors are sold in package stores.

TWENTY-FIVE CENT LUNCHEONS. A study by Wrigley's Restaurant, Milwaukee, has shown that the average thrifty white-collar worker wants and can have a balanced luncheon plate including roll, butter and choice of beverage, a hot food, and attractive variety of color, flavor and texture for not more than 25 cents. Included is a daily list of their popular menus at this price for a week's period, with illustrations of plate arrangements.

PIE COST CHART. An intensive cost chart of over 50 different pies lists information on each as to size of unit produced, unit cost of main ingredients, cost of unit as produced, number of portions per unit, size of portion as served, and cost per portion. Dietitians and managers might use this table as a basis for comparison with the cost data on their own recipes.

SALADS THAT SELL. The 26 illustrations of salads include new and unusual plate arrangements. With each illustration is a concise statement of ingredients, dressing used, bread accompaniment, and price of salad alone or with dessert and beverage.

Hotel Monthly

Vol. 48, October 1940

*Hotels should feature local foods and characteristics.—p. 14.
*Building menus to sell food. A. Shircliffe.—p. 43.
A control of dishwashing solution strength.—p 54
The coffee shop.—p. 57.

LOCAL FOODS. Stresses the importance of providing dishes of local fame on every day's menu and otherwise accenting the French character of the province in every small inn and restaurant.

MENUS. Mr. Shircliffe states that on a hotel selective dinner menu soup is an extra course; relishes when served as an accompaniment to the soup are listed below the soup on the menu; salad as a separate course should be listed below the vegetables. When a game course is the main dish, the salad should be served with the game; on a menu including a fish course, a light entrée and grill, or roast with salad as an accompaniment. A green vegetable, potato, and salad are on the selective dinner menu.

Journal of Home Economics

Vol. 32, November 1940

*Economics for college consumers. L. J. Gordon.—p. 609.
Success in your job. F. C. Moore.—p. 610.
*Free school lunches in a large city. M. L. Doti.—p. 612.
A study of the food habits of eighty college students. M. M. Shaw.—p. 614.
Meat, seafood, eggs, and milk in the self-selected diets of college men and women. A. Lautz, C. Carter, and S. Ferguson.—p. 615.
A national directory of home economists.—p. 619.
*A photoelectric method for evaluating surface color variations of baked food products. W. B. Kirk.—p. 624.

CONSUMER EDUCATION. Trends in teaching economics of consumer education in colleges appear to be in favor of teaching the subject as restricted to juniors and seniors with a flexibility to meet student's needs and interests, and coordinated with related courses to provide a selection of topics.

SCHOOL LUNCHES. Adequate school lunches served free to many school children in New York City are planned to make up deficiencies due to poor food habits and nutritionally in-

KNOX GELATINE May Help You with Patients Needing PROTEIN!

May we call your attention to plain, unflavored Knox Gelatine (U.S.P.) as an excellent aid in cases where an extra protein intake seems indicated. Knox is a wholesome food protein with these qualities which recommend it as a special dietary source of protein:

1. Knox Gelatine is *all protein*...contains no sugar.
2. In addition to 25% glycine, it contains in good percentage a majority of the other Amino Acids making up proteins.
3. It has been shown to supplement the proteins of nearly every variety of food material.
4. Knox is one of the most easily digested of all protein foods.

We have prepared a leaflet outlining the value of plain gelatine as a protein food...with a scientific résumé of how it can help in special diets such as peptic ulcer; reducing; diabetes; infants; children and convalescents. Also included is a discussion of the new use of Knox Gelatine...taken as a drink to help reduce fatigue.

The coupon below brings *your* copy. There is no obligation.

KNOX GELATINE

A PROTEIN FOOD

SEND THIS COUPON FOR FREE LEAFLET

KNOX GELATINE, Dept. 466.
Johnstown, N. Y.

Please send me Knox leaflet, "The Protein Value of Plain Unflavored Gelatine." I understand there is no obligation.

Name .....

Address .....

adequate meals. A survey of their measure of success revealed certain shortcomings and handicaps such as limited variety in the general pattern of the menu, dark and unattractive lunchrooms, lack of cloak room facilities causing children to eat with hats and coats on, minimum of supervision during lunch period and hurried eating, trading of lunches between children, noise and confusion in lunchrooms, and school understaffed.

BAKED PRODUCTS. New photoelectric reflectometer measures color variations of baked food products and provides an easy and relatively inexpensive means for obtaining reproducible measurements in comparing color variations which may be expressed as per cent reflectance in units of one dimension. Further advantage is simplicity of design and ready replacement of parts.

Modern Hospital

Vol. 55, October 1940

*Special diets for employees. D. DeHart.—p. 102.
Food cost tables—vegetables. G. S. Saunders.—p. 103.
It's simple to keep costs. E. M. Winger.—p. 106.
A dietitian in Wyoming. E. S. Carloss.—p. 108.
War declared on pests. M. A. Bailie.—p. 112.

Vol. 55, November 1940

*Food service moves swiftly. D. DeHart.—p. 90.
Food cost tables—staples; rice—polished, macaroni—elbow, corn-starch—pulverized. G. S. Saunders.—p. 94.
*Serving citrus fruits. R. Mayhew.—p. 96.

EMPLOYEE SPECIAL DIETS. Results of a survey show that special diets are permitted employees in the majority of hospitals at little or no extra charge provided the diet is prescribed by a staff physician and permission of superintendent is obtained.

FOOD SERVICE. A thorough description of the modern central food service system at St. John's Hospital, Springfield, Illinois, designed to give quick and excellent service to patients. The entire service centers around two conveyor belts moving at a speed of 30 feet per minute and serving 12 trays per minute.

SERVING CITRUS FRUIT. Marketing information on oranges, lemons, grapefruit, tangerines and limes from Florida and California with a short discussion of storage temperatures and food value.

Personnel Journal

Vol. 19, October 1940

*Hiring skilled workers.—p. 123.
Upgrading skilled workers.—p. 129.
Special emergency training.—p. 133.
*Progression training.—p. 135.
*Time taken to learn jobs.—p. 139.
*Selecting men to be trained.—p. 147.
Skilled labor supply inventory.—p. 151.

Vol. 19, November 1940

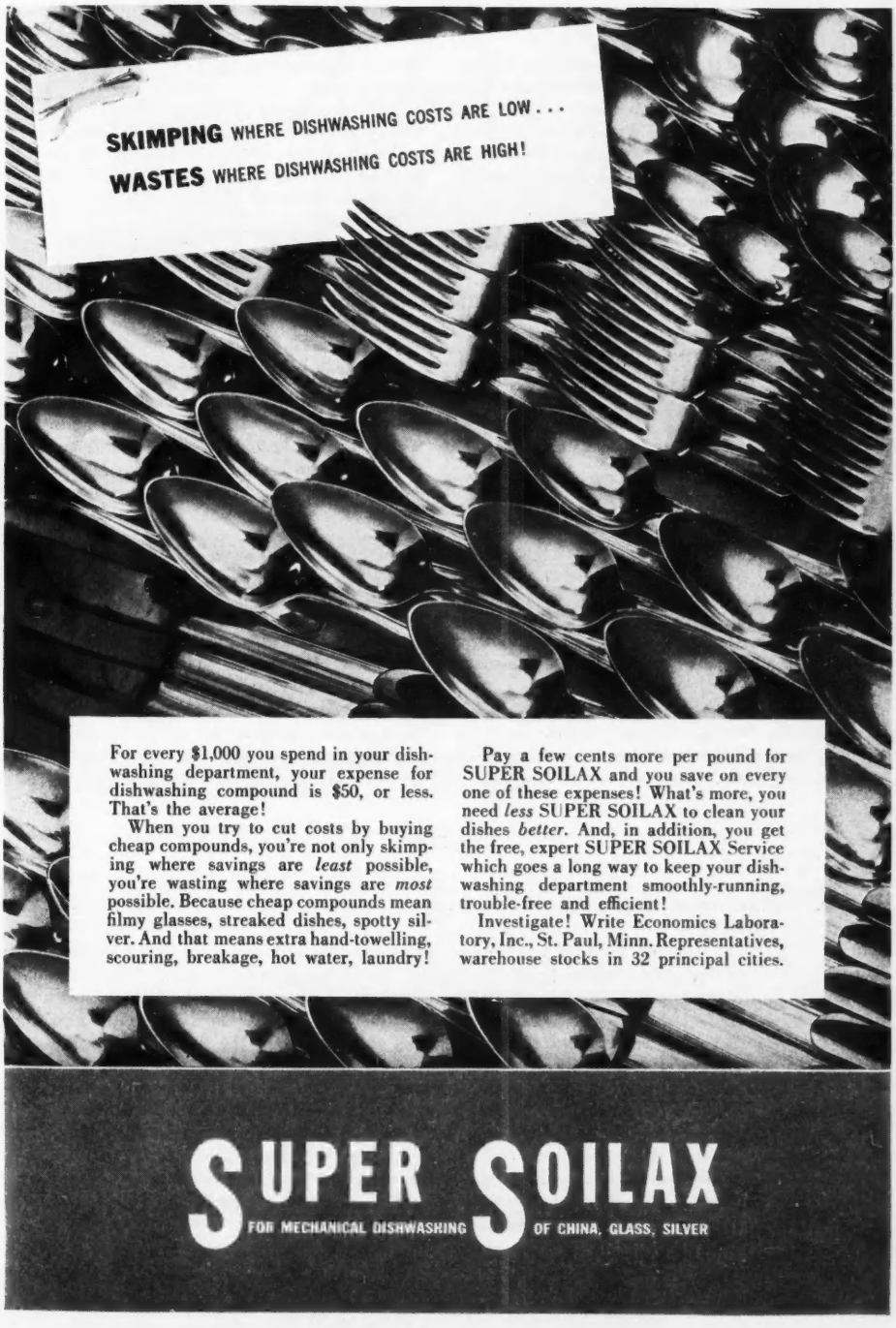
Speeding up training.—p. 165.
Training on the job.—p. 171.
Apprentice training costs.—p. 178.

HIRING. Survey indicates certain trades obtain skilled workers more effectively if workers at a lower level of skill are hired and skills developed through training programs within the plant. Hiring skilled workers by advertisement, out-of-town recruiting, and recalling former employees, and use of employment agencies has not been successful.

PROGRESSION TRAINING. In addition to a formal apprentice training program, one company has developed a plan of "progression training." Under this plan, trainees recommended by supervisors and tested as to mental capacity are trained through a planned sequence of jobs, each moving along at a pace determined by his own ability to progress. Those showing special aptitudes with extra training become specialists.

LEARNING JOBS. An analysis of the time taken for workers in one company to learn jobs at various levels of skill includes time required to learn the job, the time required to reach normal proficiency on the job, the experience required, and the experience preferred for each worker. Time required for an inexperienced worker and a worker experienced in the next lowest class of job to attain the job performance standard is compared.

WHO TO TRAIN. To be eligible for a training program designed to lift a worker from his present to a higher labor grade, a worker should show that he has a basic knowledge of his present job and the capacity to benefit by training. Although a worker has been exposed to a job


SKIMPING WHERE DISHWASHING COSTS ARE LOW . . .
WASTES WHERE DISHWASHING COSTS ARE HIGH!
For every $1,000 you spend in your dishwashing department, your expense for dishwashing compound is $50, or less. That's the average!
When you try to cut costs by buying cheap compounds, you're not only skimping where savings are *least* possible, you're wasting where savings are *most* possible. Because cheap compounds mean filmy glasses, streaked dishes, spotty silver. And that means extra hand-towelling, scouring, breakage, hot water, laundry!
Pay a few cents more per pound for SUPER SOILAX and you save on every one of these expenses! What's more, you need *less* SUPER SOILAX to clean your dishes *better*. And, in addition, you get the free, expert SUPER SOILAX Service which goes a long way to keep your dishwashing department smoothly-running, trouble-free and efficient!
Investigate! Write Economics Laboratory, Inc., St. Paul, Minn. Representatives, warehouse stocks in 32 principal cities.
SUPER SOILAX
FOR MECHANICAL DISHWASHING OF CHINA, GLASS, SILVER

over a period of years, he may not have absorbed the knowledge of the job essential as a background for another job which requires more knowledge and skill. Workers who independently have attempted to improve themselves by outside study often respond most successfully to a training program.

Practical Home Economics

Vol. 18, October 1940

*The development of an 8¢ lunch project. E. D. Patterson.—p. 299.
Beverages in the school lunch menu. H. Hinman.—p. 300.
*Nation-wide cooperation on school lunch program.—p. 301.
*Charting your course. E. von Berge.—p. 304.

Vol. 18, November 1940

Centralizing school cafeterias. M. E. Davis.—p. 339.

8¢ Lunch Project. After a detailed study of children's food habits, nutritional needs and food costs, an adequate 8 cent lunch is now served to some Ohio children. This has been made possible through the cooperation of teachers, parents, children, and state and local health and government boards. Milk with a 2% butter fat content may be sold as long as whole wheat bread and butter is ample at the same meal.

School Lunch Program. School lunch program owes its success to the cooperation between local groups, children, and government agencies. Success is measured by better health and scholastic records of the children.

School Lunch in New Hampshire. The nutritionist on the State Board of Health cooperates with the department of education in consultant service on all nutrition problems.

Restaurant Management

Vol. 47, November 1940

*Palmer introduces his "Lowell Inn."—p. 14.
*Food features.—p. 22.
*Pep up your tables.—24.
Good food hints. L. P. DeGouy.—p. 32.

Lowell Inn. Illustrations supplement a discussion of the policies and methods in effect at the Lowell Inn, Stillwater, Minnesota, including women workers handling food preparation and service, modern equipment, ingenious business promotion, homelike guest rooms and a great deal of personal supervision.

Food Features. Eleven plate arrangements for salad, vegetable or dessert combinations, with sale prices of each.

Pep Up Your Table. Special parties at the Hotel Wellington, New York, are famed for beautiful table settings and menu planning. Small investments in extra party equipment bring profits. Included are the menu, recipes and illustrations of the Rose Luncheon which received nation-wide publicity.

Malnutrition is Like an Iceberg

The advance of science opens to us the opportunity to raise the standard of living to a higher level than it has ever attained in the history of mankind. Malnutrition is like an iceberg: its greatest mass and its greatest danger lie beneath the surface. Greater benefits than the mere absence of disease or nutritional deficiency result from an abundance of those foods in the diet which are appropriately called "protective"—milk, green vegetables, whole grains and fruits. The success of a policy to improve nutrition depends on many factors—agriculture, transportation, tariff barriers, exchange restrictions, national security and armanent policy as well as the efforts of those specifically interested in public health. We do not yet know how to achieve "the marriage of agriculture and public health" but we do recognize it as the great social obligation of our times.—*Rose, M. S., World movements in nutrition. Presented before the Conference on Science and the Nation's Food, Wellesley College, October 25, 1940.*

Lactose Aids Calcium Utilization

Recent investigations have proved this fact.* Experiments with growing children showed a 33.5% average gain in the retention of calcium when lactose was present in the diet.

The natural, efficient combination of lactose and essential calcium is provided in the non-fat solids of milk.

*Details on request.

Dry Milk Solids Not Over 1½% Fat is the product resulting from the removal of fat and water from milk and contains the lactose, milk proteins and milk minerals in the same relative proportions as in the fresh milk from which made. It contains not over 5% moisture. Use it for economy and convenience. It Pays!

AMERICAN DRY MILK INSTITUTE, Inc., 221 N. La Salle St., Chicago

Your Fixt Mixes are GUARANTEED against baking failures

● We guarantee *all* Fixt Mixes against any baking failures whatsoever, not caused by oven defects. They must be satisfactory or we refund the purchase price. Why? Because we know Fixt Mixes can't go wrong! They're made of the finest ingredients throughout, under strict laboratory control, then "bake-shop" tested under service conditions. Use them on your menu at *our* risk.

ATTENTION DIETITIANS!

Fixt Whole Wheat Chocolate Pudding is extra delicious and extra nourishing, yet easy to prepare and thrifty too. Write for free laboratory and ingredient analysis on your letterhead.

NOTHING TO ADD BUT WATER

Consult your local jobber or write Lew Wall direct.

FIXT Products
1170 BROADWAY • NEW YORK, N.Y.

19 FAMOUS FIXT MIXES

Egg Griddle Cake
Waffle
Biscuit
Brownie
Cookie
Devils Food
Spice Cake
Yellow Cake
White Fuj Icing
Buckwheat-Griddle Cake
Handy Doughnut
Pie Crust
Bran Muffin
Corn Muffin
Ginger Cake
White Cake
Chocolate Fuj Icing
Supreme Choc. Pudding
Whole Wheat-Choc. Pudding

NEWS NOTES

Correction. A typographical error appeared in the definition of "dietitian" under the minutes of the Executive Board, in the December JOURNAL. The definition should read as follows: "A *dietitian* is one who has had college training in the science of nutrition and management and is proficient in the art of feeding individuals or groups."

National Coordinator of all Health, Medicine, Welfare, Nutrition and other Related Fields of Activity Appointed. The New York *Herald Tribune* for December 4 announced the appointment of Mr. Paul V. McNutt, Federal Security Administrator, as coordinator of the just mentioned fields, and that the National Research Council has appointed a committee on food and nutrition to advise the federal government on nutritional aspects of national defense. This committee, with Dr. Russell M. Wilder of the Mayo Clinic, Rochester, Minnesota, as chairman, will concern itself with improving the nutrition of the general population. A subcommittee is advising the Army and Navy on nutrition.

Dietitian Appointed Hostess at Fort Dix, New Jersey. Ernestine Latimer, a member of the A. D. A. and formerly assistant dietitian at the Roosevelt Hospital, was one of the first three hostesses appointed in the Army 2d Corps Area, according to the *Herald Tribune* for December 4. It is understood that Miss Latimer will be manager of a restaurant at the camp. She is classified as junior hostess and her salary is stated to be $1620 a year.

New York State Defense Committee. Eleanora Sense, national chairman of publicity, has been appointed representative to the Defense Committee of New York State for the Greater New York Dietetic Association.

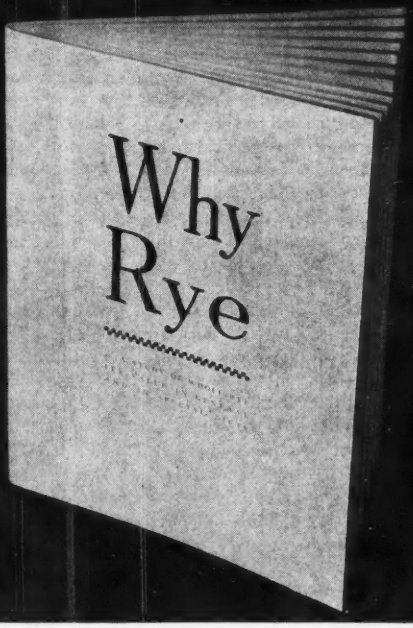
Diet Therapy Section, A. D. A. Mrs. Anna dePlanter Bowes, chairman of the subcommittee on Teaching Nutrition to Medical and Dental Students, writes that the committee's findings on nutrition courses in medical and dental schools have been summarized in two articles for publication and submitted to national medical and dental journals. The October issue of the *Journal of Dental Education* carried the committee's article on Nutrition Education in Dental Schools. It is hoped that this broad dissemination of the committee's findings will arouse interest and action in providing more practical applied nutrition education in professional schools.

Radio Bibliography. Mrs. May B. Neel, chairman of a radio subcommittee of the Community Education Section, suggests that those inexperienced in the routine of broadcasting will be interested in the following pamphlets which may be obtained from the Department of the Interior, Office of Education, Washington, D. C.; A B C of Radio, National Association of Broadcasters, Inc.; Radio Glossary; Handbook of Sound Effects; Radio Manual, Pub. No. 40856; Third Edition Catalog, Supplement to No. 40856; School Life, reprint; Catalog of Educational Radio Script Exchange; and Radio Bibliography. A more extensive bibliography will soon be available through the Chicago office at cost.

Second Annual Consumer Forum. The Advertising Women of New York, under the acting chairmanship of Mrs. Barbara Daly Anderson, director of the consumer service bureau of *The Parents' Magazine*, have scheduled a second forum for February 18 at the Hotel Pennsylvania. The theme will be "Advertisers Ask Consumers." The latter will have an opportunity to interpret their point of view to business and to have questions and criticisms answered by representative business leaders.

An Institute for Nutritionists in New England was held in Boston, November 2, 1940. Dr. Robert S. Harris of the Massachusetts Institute of Technology, Marjorie Heseltine of the Children's Bureau, and Dr. William H. Sebrell of the U. S. Public Health Service, spoke about new facts, trends, and activities in the field of nutrition. It was a timely and inspiring meeting in view of the increasing importance of nutrition education of the public as a part of national civilian defense. Mary Spalding, Massachusetts Department of Health, was responsible for the promotion and program of the institute.

Free on Request



...new 16-page book on whole rye and its value in modern diets. Compiled under the supervision of Ralston Research Laboratories.

Clinic dietitians stress the importance of rye and all-rye foods in diets planned for wheat-sensitive patients... frequently include a popular all-rye food in low-calorie diets. But what about whole-rye foods in normal diets? Just what nutrients does whole rye supply? How does rye compare in food value with other cereals?

These and other timely questions are answered for you in this handy reference book, "Why Rye." Illustrated with photographs and charts, this book supplies up-to-the-minute data in an interesting, readable manner.

TEACHING HELPS... The following study sheets, taken from the "Why Rye" book, are available for classroom distribution:

1. *Rye... its origin and food value*
2. *Food Allergy... Symptoms and Diet Recommendations*
3. *Obesity... Causes, Dangers and Diet Control*
4. *Indications for use of Ry-Krisp*
5. *Interesting ways to serve Ry-Krisp*

Just mail coupon for free copy of book, study sheets and samples of Ry-Krisp.

RY-KRISP
Ry-Krisp is an unleavened all-rye bread baked into crisp wafers. Delicious, wholesome. Sold at most food stores in the U. S.
Ry-Krisp
WHOLE RYE WAFERS

Ralston Purina Company
973B Checkerboard Square, St. Louis, Mo.

Please send free copy of "Why Rye," samples of Ry-Krisp and the following study sheets: (Indicate quantities)

1____ 2____ 3____ 4____ 5____

*Name*_____

*Address*_____

*City*_____ *State*_____

National Chemical Show. The Chicago section, American Chemical Society, held an exposition and conference, December 11–15, at the Stevens Hotel. According to the prospectus, released in advance of the meeting, "the exposition will be a veritable mobilization of the forces of the chemical industry to throw the full weight of chemical progress into the gigantic task of building an adequate national defense." It will depict the science of chemistry in many of its phases and its application to industry and the needs of mankind.

Home Economists Register for Emergency Service. The New York *Times* for November 24 states that a call has gone out to all home economists in the New York area to register with the New York State Home Economics Association for emergency services which they might fill in time of war. Marjorie Kinney, Pratt Institute, Brooklyn, president of the New York State group, has announced the appointment of Dr. Edith H. MacArthur of Skidmore College, Saratoga Springs, as chairman of the emergency service registration committee on which each district in the state is represented. On the registration cards the women are asked to indicate whether they are available for service locally or in other parts of the country, on a part or full-time basis and as volunteers or paid workers. Details of training and experience are requested. The association in Greater New York and the southeastern district has sent a resolution to Governor Lehman, supporting the stand of the national body which earlier sent a pledge of support for national defense efforts to President Roosevelt.

New York Diabetes Association, Inc., held a clinical meeting under the auspices of the Committee on Surgery, December 13, at the New York Academy of Medicine, with Dr. Beverly Chew Smith presiding. The subject under consideration was "Infection and Gangrene in the Lower Extremity in Diabetes Mellitus" with reports from the following: Drs. Fred W. Solley, St. Luke's Hospital; Herbert Conway, New York Hospital; Grant P. Pennoyer, Roosevelt Hospital; and John Gerster, Lenox Hill Hospital. The program also included discussions by Dr. Henry H. Faxon, Massachusetts General Hospital, Boston, and Dr. Frederick W. Williams, Morrisania City Hospital, New York.

More About the School Lunch. *Consumers Guide* for October 1 carries an interesting story with illustrations of the school lunch program in Kent County, Maryland. Started with the help of the county home demonstration agent, the parent-teacher associations and homemakers clubs, the project is bringing a nourishing hot lunch each day to every elementary school child through the winter months. Home gardening of carrots, cabbage, beans, peas, turnips and tomatoes has been encouraged to the extent of providing enough for home use and canning in school. The vegetables are brought to school on canning day and parents, teachers and children lend a hand. From 1936 to 1939 school canning rose from 350 to over 1000 quarts. This winter, pork products, butter, dried and fresh fruits, vegetables and cereals from the Surplus Marketing Administration will fill in to make a well-balanced lunch each day.

Food and Drug Administration. The administration's monthly summary of regulatory action for September reports seizures of the following lots of food products because of decomposition in whole or in part: 842 lb. creamery butter and 19,063 lb. moldy, rancid, and decomposed packing stock butter; frozen fish fillets; egg whites and strawberries; canned tomato purée and tomato catsup; and dried black raspberries. Insect infestation accounted for seizures of flour, pancake flour, packaged breakfast cereal, cacao beans, cartons of raisins and currants, dried prunes, shelled peanuts, fresh blueberries and blackberries, and parasite-infested white fish. Rodent contamination, insect fragments and nondescript foreign matter were found in corn meal, peanut butter, candy, tomato catsup and orange juice. Violations of an economic nature accounted for the seizure of low-fat butter and oleomargarin, short-weight peanut butter, cherries, peas, beans with pork and tomato sauce, and short-volume vegetable oil. Packaged food products were removed from the market under the deceptive packing provision because the lots were packaged in boxes or cartons unnecessarily large for the quantity of contents. These included macaroni and cheese dinner, spaghetti, celery and cardamon seed.

Regulatory actions for October included seizures of frozen fish fillets, dressed poultry, dried figs, and canned salmon. Candy, soy flake flour, corn meal, dried peaches, raisins, frozen

GULLIVER'S BONDS

As Gulliver was restrained by the Lilliputian bonds, so are many individuals deprived of real health by numerous tiny daily deficiencies in their diet. Day by day, the aggregate deficiencies may reach a total of definite inadequacy. Lack of these essential vitamins and minerals in the diet, if only to a small degree, may constitute a serious drawback to optimum health states.

More and more the profession is recommending COCOMALT for normal and therapeutic diets. The rich full flavor of this malted food dietonic, added to milk, is an incentive for both young and old to drink milk. COCOMALT contains calcium, phosphorus, iron . . . Vitamins A, B_1, D and G . . . quickly energizing . . . body building nutrients. Recent studies and references* confirm these facts.

Cocomalt is used by many physicians in diets for growing children and adults; for pregnancy and lactation, malnutrition, anorexia, pre- and post-operative patients, convalescence, febrile diseases, gastro-intestinal conditions.

COCOMALT
The Malted Food Dietonic for All Ages

R. B. DAVIS COMPANY, Hoboken, N. J.

blueberries, evaporated apples, macaroni, Limburger cheese, cookies, frozen whole eggs, and packing stock butter were seized because of insect infestations.

Seizures because of violations of an economic nature included: low-fat butter, canned peas, canned tomato purée, oleomargarin found to be deficient in fat and containing excessive moisture, so-called lemon extract, and olive oil adulterated with cottonseed oil. Deceptive packaging accounted for the seizure of lemon and vanilla extract.

Public Institution Appointments in the State of Illinois. Mrs. Arla Coates, according to the *Welfare Bulletin*, was appointed dietitian at the Manteno State Hospital on August 15. Mrs. Coates is a graduate of Oklahoma A. and M. College, where she majored in foods and nutrition, and received her training as student dietitian at Bellevue Hospital, New York City.

Esther Buhrmann, a graduate of the University of Illinois, where she majored in nutrition and dietetics, has been assigned to the School for the Blind.

Mary E. Stare, who has an A.B. degree from Knox College, and an M.S. degree from the University of Iowa, has been appointed to the School for the Deaf.

Mrs. Maude Ashman and Mrs. Marian Risburg Jones have been assigned to the WPA staff as field supervisors. Mrs. Ashman, a graduate of Purdue University, has served as dietitian at Northwestern Hospital and at Union Hospital in Terre Haute, Indiana. Mrs. Jones, who has a B.S. degree from Lombard College, has acted as administrative dietitian and instructor in dietetics at Auburn Park Hospital, Chicago, and the Jewish Hospital, Cincinnati.

Another addition to the WPA staff is that of dietitian assistant in the office of the food and textile adviser. Mrs. Edith Tilton Aitken, who has been assigned to this position, received her training in home economics at James Millikin University and the University of Wisconsin, where she received a B.S. degree. She has acted as chief dietitian at the University Hospital, Oklahoma City, for six years, and at the Barnes Hospital, St. Louis, for three years. In 1936 she went to Sydney, Australia, to organize the dietary department for the Royal Prince Alfred Hospital, and to start the first training school for dietitians in Australia.

Gelatin. The October issue of the association *Quarterly* published by the Dairy Industry Supply Association, Inc., presents an interesting discussion, with photographs, concerning the historical aspects, manufacture, and many uses of gelatin, including diagrams of Papin's early machines for manufacturing this product.

Food Supplies from Federal Government. According to the *Welfare Bulletin* of the State of Illinois, the Department of Public Welfare again benefited from the distribution of surplus commodities by the federal government, when eleven carloads of oranges were shipped to ten State hospitals and the Lincoln State School and Colony for the use of these and other state charitable institutions.

Ruth L. White, Forsyth Dental Infirmary, Boston, is the junior author of "Oral Conditions of Children in Relation to State of General Health and Habits of Life" in the *American Journal of Diseases of Children* for August, 1940.

Georgia Dietetic Association. According to the G. D. A. *News Broadcast*, the state dietetic association met jointly with the Atlanta Dietetic Association. Reports on the national convention in New York were given by Gladys Stoddart, state delegate, and Lucia Hunt, representative in the House of Delegates.

Mary Emma Barnes, Northport, Alabama, is now nutritionist with the Georgia State Health Department.

Mary Lenna Fleetwood has joined the staff of assistant dietitians at the Georgia Baptist Hospital.

Margaret Shatswell, who completed her dietetic course under Anna M. Tracy, Florida State College for Women, has been appointed manager of the Silhouette Tea House at Agnes Scott College.

Jean Pittman, home economics graduate, University of Georgia, is assisting Peggy Newsome at Sears Roebuck.

Dorothy Eubanks, who completed her dietetic course at Watts Hospital, Durham, North Carolina, is assistant at the University Hospital, Augusta.

Members of the G. D. A. were invited by the Georgia State Health Department to attend four district nurse institutes held in Atlanta, Augusta, Savannah and Albany, at which Mary

The *Jim Vaughan*

Electric Meat, Fish and Bone Cutter

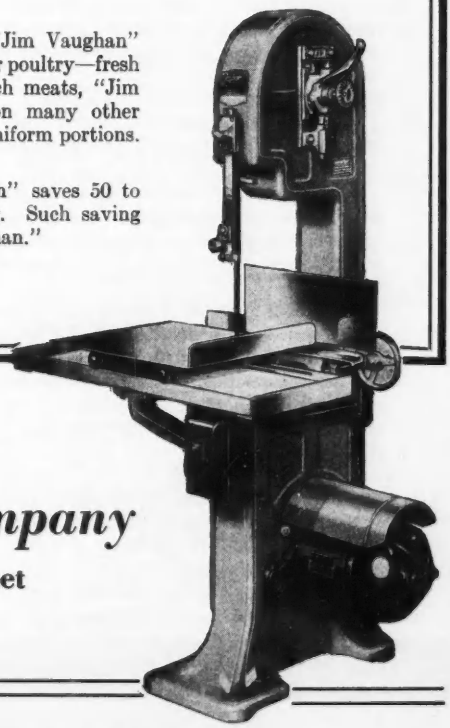
The "Jim Vaughan" is gaining increased popularity and favor among leading dietitians. There are many good reasons why this modern piece of equipment is rapidly taking its place in the modern hospital kitchen.

The Saving of Meats. The uniform and controlled cutting of meats, fish and other meat products on "Jim Vaughan" result in equal and, therefore, more portions out of a given amount of meat. Users claim savings of 5 to 20% on their meat bills.

"Jim Vaughan" is Always Ready. The "Jim Vaughan" is always ready for work. It doesn't require highly skilled or experienced help. It insures having portions ready when the chef wants them.

"Jim Vaughan" Cuts Many Foods. "Jim Vaughan" cuts beef, veal, lamb, pork, fish, bones, or poultry—fresh or roasted, may be split. Besides such meats, "Jim Vaughan" also is extensively used on many other products to cut and divide them into uniform portions.

The Saving of Time. "Jim Vaughan" saves 50 to 80% of the time required for cutting. Such saving of time quickly pays for a "Jim Vaughan."



May we send you some more information on our product?

"Jim Vaughan" Company

732-738 N. Franklin Street
Chicago, Illinois

Emma Barnes, nutritionist, was among the speakers.

Members of the G. D. A. were also invited to attend the meeting of the Georgia Pediatric Society held December 12 at the Biltmore Hotel, Atlanta.

Berma Jarrard Abercrombie was elected vice-president of the National School Cafeteria Association at the recent meeting in Nashville, Tennessee.

Florence Shearouse was married August 17 to Mr. Aubrey Folsome, in Brooklet, Georgia. Mr. Folsome studied engineering at Emory and is now on the hospital staff.

Eleanor Kellow and Daisy Daniell attended the National Restaurant Association meeting in Chicago.

Nelle Cook, formerly assistant dietitian at Georgia Baptist Hospital, has been called for service with the Army at Fort Jackson, South Carolina.

Kentucky Dietetic Association. The regular fall dinner meeting was held at Canary Cottage, Louisville, November 23. Following the dinner, two members who attended the national convention gave informal reports: Elizabeth Helton, a review of the luncheons, dinners and side trips; and Mary H. Gillaspie, a summary of the addresses, and notes of interest from the business meetings.

Miss Gillaspie, state president, has announced March 21–22 as the date for the spring meeting at Lexington.

Florence Imlay, University of Kentucky, has distributed a nutrition digest to state members, containing "Requirements of Some Food Constituents" and "Sources and Requirements of Vitamins."

The various local dietetic groups in the state have reported recent meetings with interesting programs and new members in attendance. One new organization, the South Central associate group at Bowling Green, has had two meetings and reported a large attendance of enthusiastic members.

Marie Jenkins, assistant dietitian, Louisville City Hospital, was married to Dr. Claude Perry on September 14. They are residing in Chattanooga, Tennessee.

Mrs. Margaret Baugh, Elizabeth Helton, Alberta Limbach, Rose Sleradslei and Mary H. Gillaspie attended the annual meeting of the A. D. A. in New York.

Louisiana Dietetic Association. The following officers were elected for 1940–41: president, Adelle Corey, Eastern State Hospital, Jackson; vice-president, Berniece Overton, Charity Hospital, New Orleans; secretary-treasurer, Margaret Grieshaber, Newcomb College, New Orleans.

Margaret Davenport of Charity Hospital, New Orleans, has announced her marriage to Dr. T. D. Boaz of Birmingham, Alabama.

Charity Hospital has added the following members to the dietary staff: Madge Myers, formerly of Billings Hospital, Chicago; Isabelle Humphreys, formerly of North Dakota Tuberculosis Sanatorium, San Haven; Marguerite Griffin, formerly of Alameda County Hospital, Oakland, California; and Eleanor Huckeby, also of Billings Hospital.

Luvenia Bramblett, a former Charity Hospital dietitian, has accepted a position at the Tulane University Cafeteria, New Orleans.

Lotte Benedick, formerly of Charity Hospital, was married at her home in Manhattan, Kansas, to Dr. R. K. Horsman of Fort Benjamin Harrison, Indianapolis.

Helen Marie Cincoski, dietitian in charge of infant feeding at Charity Hospital, was married in New Orleans to Dr. Portis W. Turrentine of Newhall, West Virginia.

Mary Rooney, former nutritionist for the Red Cross in Chicago, has accepted the position of educational dietitian at Charity Hospital, New Orleans.

Eleanor Bowdoin, head dietitian at Baptist Hospital in New Orleans, spoke on food service in the hospital at the Southern Institute for Hospital Administrators in New Orleans.

Adelle Corey, formerly dietitian at Touro Infirmary, New Orleans, has accepted the position of head dietitian at Eastern State Hospital, Jackson, Louisiana. Miss Margold, formerly at Harper Hospital, Detroit, has accepted a position in the dietary department, Touro Infirmary.

Members of the association who attended the convention in New York are: Florence Caswell, U. S. Marine Hospital; and Mrs. Elva James Kahrs, Touro Infirmary.

Joyce Morgan, a former student dietitian at Barnes Hospital, St. Louis, has accepted a position as assistant dietitian at the Baptist Hospital, New Orleans.

Jean LeTourneau, formerly of Battle Creek, Michigan, has accepted a position as dietitian at Charity Hospital.

CONSUMER FACTS

ABOUT "5-MINUTE" CREAM OF WHEAT

IRON. *Amount:* Each average serving (20 grams dry) of "5-Minute" Cream of Wheat provides 8.5 mg.

Source: Ferric orthophosphate.

Availability: More than 80% as available as medicinal iron, and essentially equivalent to medicinal iron in effectiveness.

CALCIUM-PHOSPHORUS. *Amount:* Each serving (20 grams dry) of "5-Minute" Cream of Wheat provides 101 mg. of calcium and 118 mg. of phosphorus.

Source: Tricalcium phosphate.

Utilization: As good, if not better, than the corresponding elements contained in milk*.

VITAMIN B_1. *Amount:* Each ounce of "5-Minute" Cream of Wheat provides over 20 International Units.

This Vitamin has been added in the form of a stabilized wheat germ.

FLAVOR. Because of added wheat germ, "5-Minute" Cream of Wheat has wheatier flavor, cooks to slightly deeper color.

QUICK COOKING. Addition of disodium phosphate to Cream of Wheat slightly raises pH of cooking water, causes starch cells to burst much more quickly during cooking.

DIGESTIBILITY. After only 5-minutes of boiling, "New" Cream of Wheat is just as digestible as "Regular" Cream of Wheat after long cooking in double boiler.

Evidence: Microscopic examination of stools of infants limited to this cereal as their only source of starch proves complete digestion.

BLANDNESS. Crude Fibre: "5-Minute" Cream of Wheat contains only 1 part in 200, because all bran particles are completely screened out of added wheat germ.

ECONOMY. "5-Minute" Cream of Wheat costs no more than "Regular" Cream of Wheat. 28-ounce package contains 40 servings.

* The Retention of Calcium and Phosphorus by Pre-school Children. Journal Nutrition 19: 401-414 (Apr.), 1940.

"Cream of Wheat" Reg. U. S. Pat. Off.

FREE! PRODUCT INFORMATION SHEETS WILL BE SENT FOR NUTRITION CLASS STUDENTS UPON REQUEST. THE CREAM OF WHEAT CORPORATION, MINNEAPOLIS, MINNESOTA

Maryland Dietetic Association. The first Maryland Nutrition Conference was held at the University of Maryland, November 22, to study the present status of nutrition programs in the state, discuss methods of extending the work, and correlate efforts. It is hoped that this meeting will be followed by others dealing with nutritional problems in the state, not only as a defense measure but also as a movement for better general health. Twenty-two organizations, each offering a nutrition program, were represented.

The morning program consisted of the following: "A Résumé of the Nutritional Work Carried on by the Different Organizations in Maryland", J. Ernestine Becker, School of Hygiene and Public Health, Johns Hopkins University; "Nutrition in a Welfare Program", Mrs. J. Enos Ray, State Board of Public Welfare; "Nutrition and Defense", M. L. Wilson, director of extension work, U. S. Department of Agriculture; "Practical Objectives in a Nutrition Program", Dr. E. V. McCollum. Marie Mount of the University and Martha Thomas of Hood College presided.

The afternoon program, at which Venia M. Keller presided, consisted of a panel discussion on "Nutrition in Montgomery County" conducted by Mrs. Hostetler, extension worker. The meeting closed with a report from the committee on recommendations suggesting that committees be established to outline the future course of the conference and the work of the representatives.

Delegates to the conference from the Maryland Dietetic Association were Helen Schmit, president, and Miriam Connelly. Other association members attending were Dr. E. V. McCollum, J. Ernestine Becker, Katherine Leamy, Helen Baughman, Adeline Hoffman, Betty Olsen Hesser, Alice Jané, Alice Lambert, Phyllis Rowe, Daisy Smith, Elva Tatman, Eloise Trescher and Claribel Welsh.

The Maryland Dietetic Association was invited to a dinner in Washington November 11 given by the Women's Joint Congressional Committee in honor of the Inter-American Commission of Women. Representatives from twelve South American countries were present. Those who attended were Miriam Connelly, Alice Jané, Elva Tatman, Vera Stemple, Ruth Hoover, Josephine Anderson, Margaret Pollard, and Helen Schmit.

The Diet Therapy Section has sponsored the following two lectures: "Salt and Water Metabolism", Dr. George Thorn; and "Cardiac Conditions", Dr. Caroline B. Thomas, Johns Hopkins Hospital.

Eleanor Schellenberg, formerly of Lewistown, Pennsylvania, has accepted a position on the staff of the Baltimore City Hospitals.

Dr. and Mrs. Robert F. Bell of Louisville, Ky., announced the birth of a son on November 11. Mrs. Bell, née Nell Trenkle, was formerly on the staff of the Baltimore City Hospitals.

Dorothy Pierce, formerly dietitian at the University of Maryland, is now with the Baltimore Public Schools Cafeterias.

Mary Diefenderfer Matlat has moved to Burbank, California.

Massachusetts Dietetic Association. Dr. Otto A. Bessey, Department of Pathology, Harvard Medical School, spoke at the October meeting of the association on "Some Recent Biological Researches with the Vitamins." The Administrative and Diet Therapy Section chairmen announced that they would each present a series of round-table discussions throughout the year.

Mary Hawks, formerly dietitian at the Massachusetts General Hospital, has accepted a government position as dietitian in the Panama Canal Zone.

Charlotte McNary, Massachusetts General Hospital student, class of 1940, was married October 1 to Mr. Charles Stark and is now living in Missoula, Montana.

Alice Price, Massachusetts General Hospital student, class of 1940, is now therapeutic dietitian at the Hospital for Joint Diseases, New York.

Frances Stern attended the meeting of the American Public Health Association at Detroit.

The Food Clinic of the Boston Dispensary, in cooperation with the Greater Boston Community Fund, displayed an exhibit on protective foods at the Boston Food Fair, October 6–13. The staff and students of the Food Clinic were in attendance afternoons and evenings to answer questions. Susan Merrow, graduate of the Food Clinic Course, 1940, began her duties October 15 organizing a Food Clinic at the Children's Hospital, Philadelphia. Mary Remington, Iowa State College, 1937, who will be chief of the Food Clinic at Cook County

ADVANCES IN CANNING TECHNOLOGY

I. Requirements for the Modern Canning Factory

● During the first decade of the 19th Century, Nicholas Appert, an obscure French confectioner, worked out empirically the basic principles of canning. In 1811, the first English edition of his book on the "Art of Preserving" was published (1). This text lays down the fundamentals of the canning process; it describes the necessary organization of a canning establishment and its equipment; and it lists canning procedures for more than 50 foods of both animal and plant origin.

Viewed in the light of modern knowledge, Appert's book is surprisingly complete and many of his observations amazingly accurate. Naturally, in the 130 years since his book was published, many advances have been made in canning technology. Consequently, when Appert's quaintly worded descriptions of the requirements for the use of his process are compared with those of modern commercial practice, some insight may be had as to the vast improvements which have been wrought in this important field of food preservation since its humble beginning.

One striking contrast between the old and new in canning lies in Appert's description of the necessary features of a canning establishment of his day. Appert's establishment apparently was composed of seven rooms or "apartments". Four of these were equipped to handle the preparation of fruits, vegetables, and foods of animal origin; the fifth room was devoted to the cleaning and storage of the glass bottles used as containers; the sixth room was the "sealing" room in which the bottles were corked after filling with food; the last room contained the large covered kettle in which the sealed containers were processed in boiling water.

The requirements for the modern cannery are, of course, much more exacting, both from the standpoint of factory site, arrangement, and equipment. Today, canneries must be located close to the fields, orchards, or waters from which the raw materials are harvested. Rapid handling of freshly harvested raw stock—a prime requisite for quality of the final product—is thus facilitated. The factory site must also be chosen so that an adequate supply of potable water is available. The modern canning plant is arranged specifically for handling the product or products that will be canned. This provides for continuous, rapid, and even flow through the various operations comprising the canning procedure for the particular product.

Needless to state, the equipment requirements of the modern canning factory are also much more complex than in the days of Appert. Present-day, large-volume production—necessary for the manufacture of a low-cost product—requires the use of high-speed automatic equipment for conveying the raw materials through the cleansing, preparatory, and all other operations of the commercial canning procedure. Frequently, much of this equipment must be constructed of special metals or alloys; in all cases it must be so constructed as to permit rapid, thorough, periodic cleansing. To maintain and control this highly specialized machinery, a skilled mechanical staff is necessary.

Space will not permit fuller description of other requirements for the cannery of today. Thousands of such factories combine to form the American canning industry, whose products already have become so essential in our modern civilization and in our national defense. Commercially canned foods have fulfilled every prediction of Appert by whose "extensive practice and long perseverance" a new means of food preservation was made possible.

AMERICAN CAN COMPANY
230 Park Avenue, New York, N. Y.

REFERENCES

(1). The Art of Preserving All Kinds of Animal and Vegetable Substances, M. Appert, Black, Parry, and Kingsbury, London, 1811.

We want to make this series valuable to you, so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned-foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles. This is the sixty-seventh in a series which summarizes, for your convenience, the conclusions about canned foods reached by authorities in nutritional research.

ACCEPTED AMERICAN MEDICAL ASSN

The Seal of Acceptance denotes that the statements in this advertisement are acceptable to the Council on Foods of the American Medical Association.

(In writing to advertisers, please mention the journal—it helps.)

Hospital, Chicago, is spending six months in the Food Clinic to observe methods, work with patients and teach students. Elizabeth Vaughn, Keuka College, 1938, now at Genessee Hospital, Rochester, New York, as assistant dietitian, has a one-year leave of absence to study in the Food Clinic and hopes to establish a Food Clinic in her hospital upon her return.

Mary Louise Kaylor, nutritionist for the Commonwealth of Pennsylvania, is taking the special public health nutritionist's course at Simmons College this term.

The marriage of Bonita Sharp, assistant dietitian at the Peter Bent Brigham Hospital, to Mr. Robert Simmons, took place November 9 in Watertown, Massachusetts.

The marriage of Roberta Johnson, dietitian at the Massachusetts Women's Hospital, to Dr. William Rizer of the Peter Bent Brigham Hospital, was announced in October.

Alice Bernstein, former student at the Beth Israel Hospital, has accepted a position as dietitian at the Miriam Hospital, Providence.

The Community Education Section sponsored an exhibit at the Boston Herald Book Fair, Boston, October 21–26. The exhibit was made up of two parts: a table and backdrop which included posters and foods of the protective diet and another table which displayed technical and non-technical books on normal nutrition, diet therapy and health education. The committee in charge of the exhibit included Rae R. Goldberg, Food Clinic, Beth Israel Hospital, chairman; Martha Kaplinsky, Food Clinic, Beth Israel Hospital; Theresa O'Rourke, Department of Public Health, Commonwealth of Massachusetts; Charlotte Raymond, Newton Red Cross; and Andromache Tsongas, Community Health Association.

Dr. Charles F. Wilinsky, executive director, Beth Israel Hospital, spoke at the November meeting of the Massachusetts Dietetic Association on "War and the Public Health."

The Diet Therapy Section held a round-table meeting November 12 at the Women's Educational and Industrial Union under the direction of Elizabeth Kingsbury.

Elizabeth Wright, who completed her student course at the Massachusetts General Hospital, has been appointed ward administrative dietitian at that hospital.

Frances Botsford has been appointed assistant dietitian at the Eye and Ear Infirmary of the Massachusetts General Hospital, replacing Isabel Cook who is now in charge of the Eye and Ear Infirmary Dietary Department.

Stacia Kuffel, who has just finished her course at the Women's Educational and Industrial Union, has been appointed serving room dietitian in the White Building of the Massachusetts General Hospital.

Maniza Moore, formerly head dietitian, Beth Israel Hospital, has been appointed head dietitian at Vanderbilt University Hospital, Nashville, Tennessee. Gertrude MacDonald, formerly of the Peter Bent Brigham, replaces Miss Moore at Beth Israel.

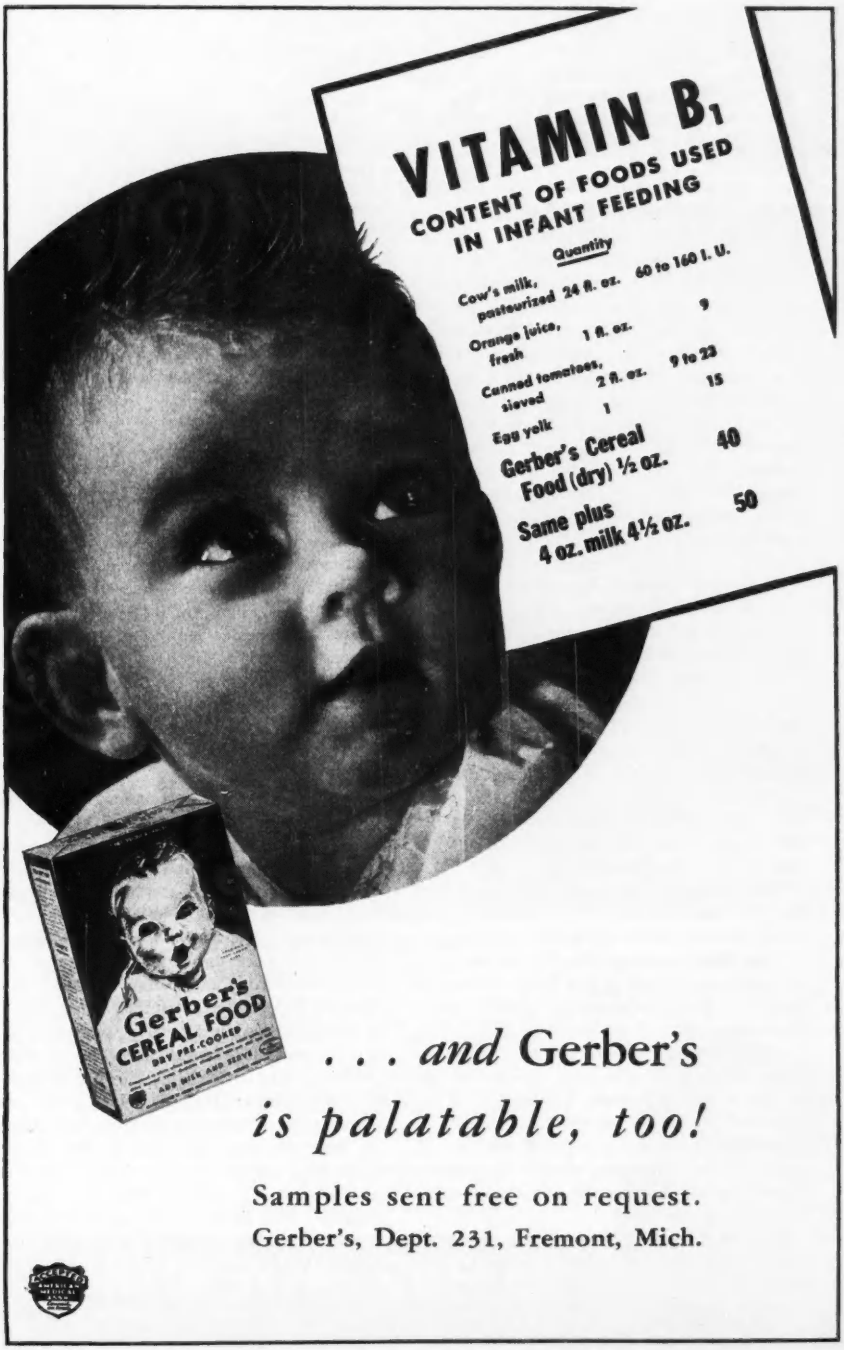
Frances Stern addressed the New Jersey Dietetic Association on November 14, 1940. Harriet Stone, director of nutrition in the State Department of Education and chairman of the Dietetic Placement Bureau, New Jersey, and Alberta Dent, associate professor in charge of nutrition at New Jersey College for Women, spent the past July in the Food Clinic. Miss Stern also visited East Orange Memorial Hospital at the invitation of Miss Trapp, administrative dietitian, and Mary Roberts, chief of the Social Service Department, who was formerly social service worker at the Boston Dispensary.

A State Nutrition Council was organized at Massachusetts State College on November 4, under the sponsorship of the Association of Land-Grant Colleges. Representatives were present from fourteen organizations doing nutrition work. This council will serve as a clearing house for nutrition activities in the state and be ready to act in any national emergencies. Thirty-five states have organized similar committees.

Edith Hobson has left the Massachusetts General Hospital and is now on the staff of the Sarasota Hospital, Sarasota, Florida.

Michigan Dietetic Association. National defense as related to the dietitian was the keynote of the fall meeting at the Battle Creek Sanitarium, November 15, 1940. The association was particularly fortunate in having two representatives of the A. D. A., Mary I. Barber, President, and Gladys Hall, the newly appointed educational director, present.

Miss Barber presided at the luncheon meeting and introduced Miss Hall who outlined some of her work and told about the Association's duty


VITAMIN B1
CONTENT OF FOODS USED IN INFANT FEEDING
Quantity
Cow's milk, pasteurized 24 fl. oz. 60 to 160 I. U.
Orange juice, fresh 1 fl. oz. 9
Canned tomatoes, sieved 2 fl. oz. 9 to 23
Egg yolk 1 15
Gerber's Cereal Food (dry) ½ oz. 40
Same plus 4 oz. milk 4½ oz. 50
Gerber's CEREAL FOOD
DRY PRE-COOKED
ADD MILK AND SERVE
. . . and Gerber's
is palatable, too!
Samples sent free on request.
Gerber's, Dept. 231, Fremont, Mich.

in relation to national defense. Barbara Dell from the Bureau of Social Security, Lansing, described the plans of the State Nutrition Committee for national defense. Miss Dell is the state association's representative on that committee.

At the morning session Dr. Manley J. Capron of the Battle Creek Sanitarium talked on the subject "Diagnosis and Treatment of Anemia".

In the afternoon, Mary McKelvey, dietitian, University Hospital, Ann Arbor, conducted a round-table discussion concerning practical problems of the institution. Following this, Miss Barber and her assistants gave a food demonstration and a tea in the W. K. Kellogg Experimental Kitchen. A trip to Fort Custer to see the new barracks and buildings ended the all day meeting.

Mrs. Ethel M. Flower, dietitian, American Legion Hospital, was chairman of general arrangements, and Mary McKelvey, program chairman.

Minnesota Dietetic Association met November 12 at the Kahler Hotel, Rochester, holding a business meeting during the morning and a luncheon at the State Hospital, where Dr. R. D. Williams discussed "Vitamin B_1 Deficiency." The afternoon meeting was held at the Mayo Foundation House with the following program: "Diet in Liver Disease", Dr. A. M. Snell; "Anemia", Dr. C. H. Watkins; and "Hyperinsulinism", Dr. F. R. Keating. After the session the dietitians were entertained at a tea at the Foundation House, followed by a tour through the Mayo Clinic.

Ethel Ellington has been transferred from the Veterans Hospital, Minneapolis, to the Veterans Hospital at Muskogee, Oklahoma.

Hope Hunt has returned to Canada to assume the position of head of the Home Economics Department at the University of Saskatchewan, Saskatoon.

Mildred King, formerly of the University Farm Campus, is now food director of the Student Union at Lincoln, Nebraska.

Lorene Kulas has accepted a position at Grandview Hospital, LaCrosse, Wisconsin.

Lois Frank, formerly of the Community Health Service, Minneapolis, is now state nutritionist in Pennsylvania.

Katherine Wismer, formerly of Massachusetts General Hospital, is now a member of the nutrition staff, University Farm, Minneapolis.

Ethel Arnold is at the Station Hospital, Fort Snelling.

Mrs. Charlotte Spencer has replaced Mrs. Robertshaw at Bethesda Hospital, St. Paul.

Food of our Forefathers, by Gertrude I. Thomas, has been published by F. A. Davis and Co.

Mary Streidl is now assistant dietitian at St. Mary's Hospital, Minneapolis.

Ruth Van Braak's successor at Fairview Hospital is Lillian Smith.

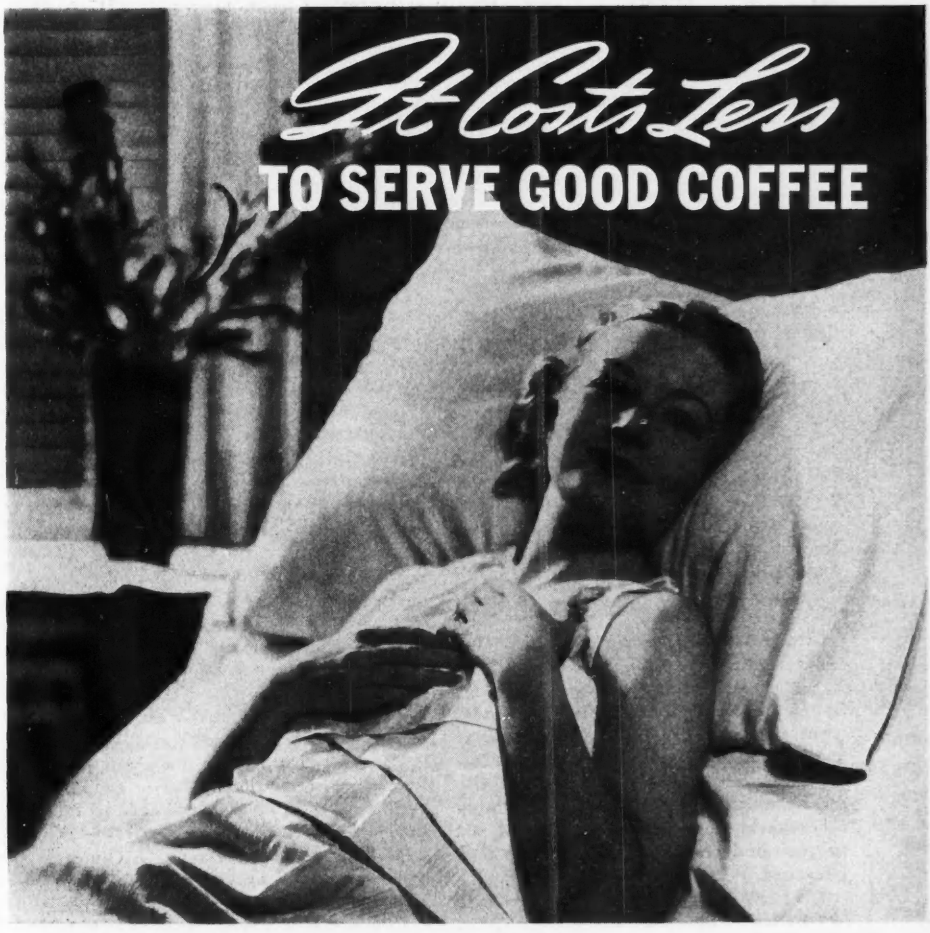
Jean Finkenbinder is now in the Community Health Service, Minneapolis.

Nelle Scott has been added to the staff of St. Mary's Hospital, Rochester, as assistant administrative dietitian. She received her M.S. degree at the University of Indiana and her student work at the Indiana University Hospital.

Recent marriages include that of Carol Frautchi to Mr. John Thera, and Ruth Van Braak to Mr. John Miles.

Minnesota was well represented at the American Dietetic Association convention in New York. The following attended: Gertrude Thomas, University Hospital; Adelaide Jury, General Hospital, Minneapolis; Mary Foley, Mayo Clinic; Annette L. Mayer, Rochester Diet Kitchen; Ann McCuish, St. Mary's Hospital, Rochester; and Mrs. Winifred Erickson, Ancker Hospital, St. Paul.

New Jersey Dietetic Association. The eighth annual meeting was held November 14 at the New Jersey College for Women. The meeting opened at 9.30 a.m. around the coffee table with the institution administration seniors, Home Economics Department, as hostesses. The business session followed with the president, Elizabeth Rupert, presiding. Reports of the officers, committee and section chairmen, and House of Delegates representative, were given. Addresses followed by Dr. Anna Spiesman Starr, associate professor of social psychology, Rutgers University, and Nelda Ross, director of nutrition, Presbyterian Hospital, New York, and president-elect, American Dietetic Association. Dr. Starr spoke on the "Psychological Aspects of Dietetics", illustrating her remarks with case histories from the Mental Hygiene Clinic at Rutgers. Miss Ross brought information concerning the national Association when she discussed "The American Dietetic Association and the Defense Program".



Its Refreshing Stimulation Cheers Patients and Helps Keep Up Their Spirits

And that's particularly true of Continental Coffee because it is a blend of extra-strength... extra-richness . . . and full satisfying flavor. It relieves nervous strain, gives a lift to fatigued minds and tired bodies. Yet with all its exceptional deliciousness and full-flavored satisfaction, Continental Coffee is more economical to serve . . . *it actually costs less per cup!*

So serve Continental Coffee . . . the balanced blend especially prepared for hospital use . . . and save by its economy.

We also design and build the finest coffee equipment . . . both urns and glass . . . to brew the best coffee at the lowest price per cup. Write for details.

MEMBERS OF THE NEW YORK SUGAR AND COFFEE EXCHANGE

© Continental Coffee Company, Inc.

WRITE FOR FREE TRIAL PACKAGE
CONTINENTAL COFFEE CO., Inc.
373 W. Ontario Street, Chicago, Illinois

Serve **CONTINENTAL COFFEE**
AMERICA'S LEADING HOSPITAL COFFEE

In the afternoon Margaret T. Corwin, dean of the college and Helen W. Hazen, head, Home Economics Department, extended greetings, and Dr. Mary Swartz Rose, professor of nutrition, Teachers College, Columbia University, spoke on "World Movements in Nutrition", using graphs and charts to demonstrate the import and extent of faulty nutrition among people and what is being done in many sections of the world to overcome this.

"The Food Clinic and National Nutritional Problems" was discussed by Frances Stern, chief of the Food Clinic, the Boston Dispensary. Miss Stern also displayed folders and pamphlets and much illustrative material.

Mrs. Helen Hazen and Alberta Dent entertained a number of the members of the association at a buffet supper at Woodlawn, the Alumnae House, New Jersey College for Women, the evening of November 14.

Alee Conway has accepted a position in the New York Hospital, New York.

Mary Tufts is the new assistant at Christ's Hospital, Jersey City.

Greater New York Dietetic Association. The annual meeting will be held February 4 at Hosac Hall, The New York Academy of Medicine. The speaker will be Robert R. Williams, Sc.D., chemical director, Bell Telephone Laboratories, and his subject, "The Evolution of Man's Dietary Requirements." The lecture will serve to reveal chemical evidence in support of the theory of evolution, supplementing anatomical and morphological evidence which has long been recognized.

The Christmas Party was held December 11 at the Nurses Home, St. Luke's Hospital, and the program included a film on "Romance and Meat."

New York State Dietetic Association. Eula Bee Martin Corban has been recently appointed head of the Home Economics Department at Queens College, one of the newest of New York's borough colleges where a home economics department has been established. Mrs. Corban was formerly at the New England Baptist Hospital, Boston. Before her present appointment she taught home economics at Marymount College. Mrs. Corban will teach classes in food and nutrition at Queens College and two evening classes at Pratt Institute.

Buffalo Dietetic Association met September 12 at the Niagara Sanatorium, Lockport. Mrs. McKeever, the former Georgia McCleland, presided. Dr. Arthur Aitken, superintendent of the sanatorium, spoke on "New Developments in the Treatment of Tuberculosis." He outlined the origin of hospitals and told of the first attempts to care for tubercular patients in separate institutions. Dr. Margaret Schley discussed "Women's Place in the World Today" at the October meeting. In December the association met jointly with the home economics association.

Dorothy Neal, formerly of Rochester, has been appointed dietitian at the Central Park Hospital.

Janet Buckley, Sisters of Charity Hospital, was married in September to Mr. Edward Reed.

Dr. and Mrs. Billowitz announced the birth of a son in June. Mrs. Billowitz was Rose Cobenko of the Edward J. Meyer Memorial Hospital.

Mr. and Mrs. J. M. Kite, San Diego, announced the birth of a daughter in August. Mrs. Kite was formerly Hertha Kingborn of the Millard Fillmore Hospital.

Rochester Dietetic Association held a dinner meeting October 14 at the West High School. The Misses Andrews, Easton and Foote presented "New Tricks in Food."

The November meeting was held at the Rochester General Hospital where Dr. Libby Pulsifer discussed "A Rationalization of Diets Used in Gastro-enterology."

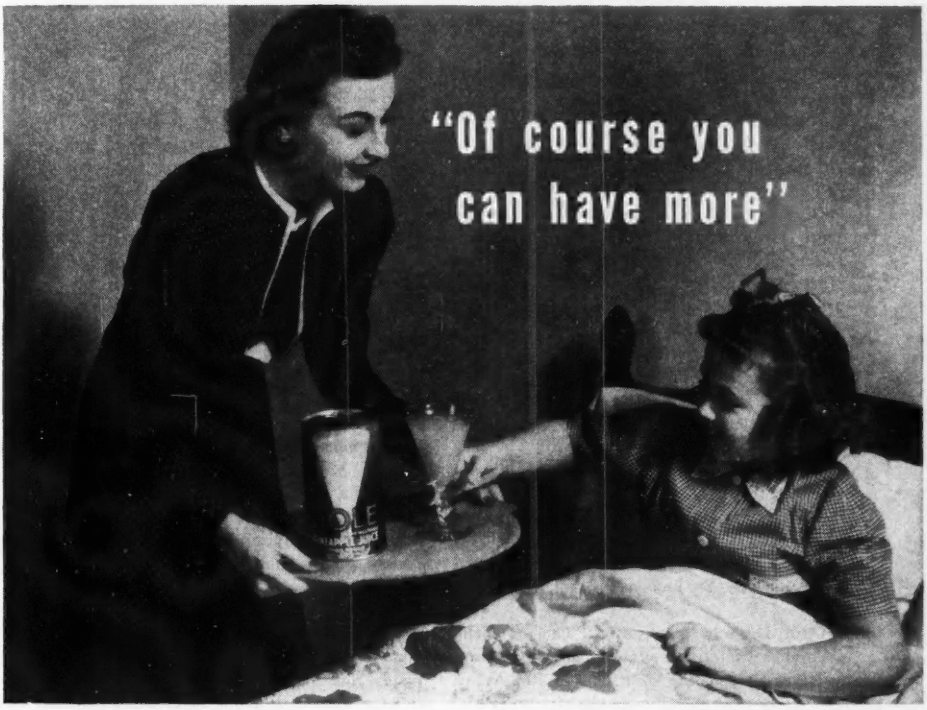
On December 16 Dr. Dwight C. Carpenter spoke before the association at the Strong Memorial Hospital on "Chemistry of Proteins."

Ruth Edwards, Strong Memorial Hospital, was married in July to Mr. Ervay J. Baker of Syracuse.

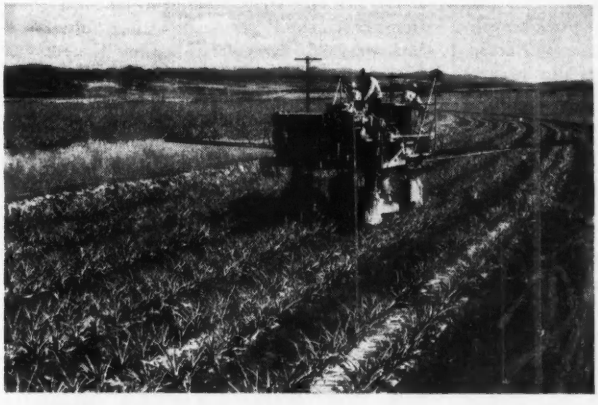
Dorothy Schuerch, formerly of Beverly Hospital, Beverly, Mass., at present is administrative assistant at Strong Memorial Hospital.

Anne Shaw, Rochester General Hospital, was married September 7 to Mr. John B. Heffelfinger. They are living in Cedar Rapids, Iowa. Charlotte Schenell, who has finished her student course at Ann Arbor, Michigan, will replace Mrs. Heffelfinger at Rochester General Hospital.

A new wing is being erected at Strong Memorial Hospital to accommodate private and semi-private patients and to give additional space to the Dietary Department.



ILL, CONVALESCENT OR WELL, children always enjoy the zestful goodness of Dole Pineapple Juice. Because it is absolutely pure and unsweetened (*nothing* is added) and is easily assimilated, Dole is recommended for young convalescents as well as adults. It comes only from top quality, sun-ripened fruit. It is a good source of vitamins B and C, and contains A.



HERE IS ONE REASON for the fine quality and nutritional value of Dole pineapples. In Hawaii's sunshine the plants are "fed" an iron sulphate solution which supplements the iron the plants are able to extract for themselves from Hawaii's deep, warm soil. This is just another example of the way Dole's plant nutritionists bring science to the aid of nature.

DOLE pineapple juice from Hawaii

(In writing to advertisers, please mention the journal—it helps.)

The first meeting of the Hudson Valley Dietetic Association was held September 10 at the Albany Hospital. A report of the Nutrition Conference held at Ithaca was given by Marguerite Queneau of the State Department of Health, and colored movies of the conference exhibits shown.

On September 19–21 the nutritionists of the State Department of Health attended a Regional Conference of Consultants in Nutrition and Nursing from nine states of the northeastern area at Henry Street Visiting Nurse headquarters, New York. The subject, "Content and Method of Continuous Staff Education in Nutrition as Part of a Total In-Service Program for Public Health", was presented by Jessie J. Cole, nutrition consultant, New York State Department of Health.

Utica Dietetic Association members who attended the A. D. A. convention in New York were: Virginia Mathews, Rome City Hospital; Lucille Townsend, Dixon-Slocum Clinic, Utica; Florence Wye, Rome County Hospital; and Ethel Flayton, St. Luke's Hospital, Utica.

Ohio Dietetic Association. Officers of the Columbus Dietetic Association for 1940–41 are as follows: president, Alice Johnson, University School, Ohio State University; vice-president, Sarah Dewees, Grant Hospital; secretary-treasurer, Harriet Peeples, White Cross Hospital. Miss Dewees, as chairman of the Membership Committee, is assisted by Betty Norelius, St. Francis Hospital, and Katherine Seymour, Neil Hall, Ohio State University. Members of the Program Committee are Mrs. Mary Leech, chairman; Minerva Harbage, White Cross Hospital, and Mrs. Martha Lewis. The publicity chairman is Marian Mustard, Columbus Milk Council, assisted by Myrtle Thornton. Eeda Barnes, Ohio School for the Blind, is chairman of the Project Committee, assisted by Dr. Martha Koehne, Ohio state nutritionist, and Kathleen Scobie, Starling-Loving University Hospital. Beatrice Evans, Starling-Loving University Hospital, and Alberta Lee, Grant Hospital, are on the Telephone Committee. The history is being written by Myrtle Thornton.

The 1940–41 class of student dietitians in training at Starling-Loving University Hospital are: Bertha Benton, Michigan State College; Elizabeth Chisholm, College of St. Benedict; Georgine Gosnell, Iowa State College; Mary Semple, Antioch College; Erma A. Boyett, Oklahoma College for Women; Ann Vogel, Seton Hill College; Margaret Running, University of Minnesota; Carolyn Smith, Hunter College and Columbia University, New York City.

Students completing the 1940 course have been placed as follows: Jean Landefeld, Elizabeth Steel McGee Hospital, Pittsburgh; Thelma Bowen, Westmoreland Hospital, Greensburg, Pennsylvania; Veva Matthews, Deaconess Hospital, Billings, Montana; Wynefred Warren, Fred Roberts Memorial Hospital, Corpus Christi, Texas.

Officers of the Dayton Dietetic Association for 1940–41 are as follows: president, Verna Miller, home economist, Frigidaire Division, General Motors Corporation; vice-president, Mrs. Alta Hirsch, Miami Valley Hospital; secretary, Mrs. Hazel Reeve, National Cash Register Company; and treasurer, Alice Davis, Roosevelt High School, who is also chairman of the Membership Committee which includes Jeannette Gantz, Miami Valley Hospital, and Edith Woodmancy of the Veterans Facility Administration. Carolyn Moorman, Miami Valley Hospital, program chairman, is assisted by Mrs. Mary Littlejohn, Ohio Bell Telephone Company, and Mary Nicholson, Rike-Kumler Tea Room. The Publicity and History Committee members are Alta Hirsch, Carolyn Moorman and Alice Davis. The Project Committee includes Mrs. Katherine Cowgill, Farm Security Administration, chairman; Jane Cape, Home Economics Department, Antioch College; Mrs. Mary Addison, Veterans Facility Administration; Dorothy Menke, Miami Valley Hospital; and Hannah Owens, Miami Valley Dairy Council. Mrs. Ruth Rich; Phyllis Nussmeyer, Miami Valley Hospital; and Mrs. Ida Mae Johnson, Frigidaire Executive Dining Room; compose the Telephone Committee.

The 1940–41 class of student dietitians at Miami Valley Hospital includes: Katherine Covel, Michigan State College; Juanita Mulhauser, Miami University; Leona Gordon, Michigan State College; Mary Louise Milroy, Ohio Wesleyan University; Lorraine Minnich, Miami University; Virginia Weitz, Carnegie Institute of Technology; Marguerite Hansen, Notre Dame College; and Virginia Hansen, Flora Stone Mather College.

LOWER COST

Vitamin C Administration

Institutions all over the country are saving thousands of dollars yearly with V-C-B, the modern special-purpose food designed to contribute known quantities of Vitamin C to the daily diet!

V-C-B's low cost of only one and 6/10ths cents per 50 mgm of Vitamin C effects a considerable saving over administering Vitamin C in any other form, including canned or fresh fruit juices.

Dissolved in water according to directions, V-C-B produces a pleasant fruity beverage containing approximately 1000 International Units of Vitamin C and 50 calories per 4-oz liquid portion—the approximate equivalent of fresh orange juice in caloric value and Vitamin C potency.

V-C-B may also be used to increase the Vitamin C content of all fruit juices, and mixed with milk, ginger ale, or charged water as a refreshing beverage in Liquid Diets, Restricted Diets, High Carbohydrate Diets and Forcing Fluids.

Because of the convenience, dependability and economy of V-C-B, the Byrd Expedition took no other source of Vitamin C to Antarctica. For the same reasons many State Institutions have adopted V-C-B as a standard for administering Vitamin C.

These institutions are also saving thousands of dollars yearly with V-C-B. Similar savings can be brought about in your institution. Send for additional details and a 3½-oz sample can of V-C-B (makes one quart of Vitamin C Beverage) free of charge, NOW!

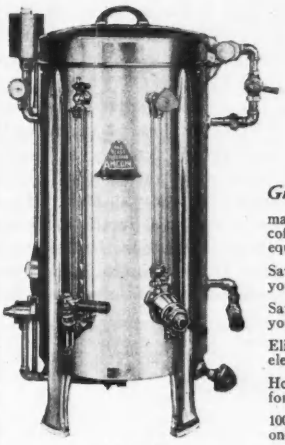
ACCEPTED AMERICAN MEDICAL ASSN.

VITAMIN PRODUCTS DIVISION
HILKER AND BLETSCH COMPANY
15-17-19 E. Pearl Street, Cincinnati, Ohio

Please send, free of charge, 3½-ounce sample of V-C-B (makes 1 quart of Vitamin C Beverage).

Name.....
Street.....
City..... State.....

AMCOIN PROCESS
The All Glass Interior



4 AND 8 GAL.

Illustrating 1941 Streamlined Model

Combination Type

Guaranteed to

make a better cup of coffee than any other equipment—

Saves 15 to 25% of your coffee bills.

Saves 20 to 25% of your cream bills.

Eliminates the human element—

Holds its original flavor for 4-6 hours.

100% extraction with one infusion.

No re-pouring.

Write for literature

AMCOIN CORPORATION
1148 Main St. Buffalo, N. Y.

Fruits
FOR THE DIABETIC

Luscious sun-ripened fruits packed in natural juice without added sweetening. Specify Cellu Juice-Pak. With food values printed on the label.

Write for the Cellu Catalog

Chicago Dietetic Supply House, Inc.
1750 W. Van Buren St. Chicago, Ill.

CELLU
DIETARY FOODS

The November meeting of the Dayton Dietetic Association was devoted to exhibits and a study of new food products, following a dinner in the officers' dining room of the National Cash Register Company.

Bertha Hays has accepted a position as dietitian at Lancaster Hospital, Lancaster, Ohio.

Mary Leatherman, formerly of Lancaster Hospital, has accepted a position in Pittsburgh.

Jean Fleming, formerly at Mercy Hospital, Columbus, is in training at Stouffers', Cleveland.

Jane Gorsuch, nutritionist, is on leave from the Columbus District Nurses Association for post-graduate study at the University of Michigan.

Jessie Arnold is now manager of Burdine's Tea Room, Miami, having left Saint Francis Hospital, Columbus.

Helen Newcomer has accepted the management of the cafeteria at the Delco Brake Division, General Motors Corporation, Dayton.

Pittsburgh Dietetic Association. Jennie Barton, chief dietitian of the Presbyterian Hospital and president of the Pittsburgh Dietetic Association, was hostess to the members of the association at a Christmas party December 3 at the Presbyterian Hospital. After dinner an organ recital was given by Charles Stitt, assistant organist of the Emory Methodist Church.

Ruth Sylvester, chief dietitian of Allegheny General Hospital, has been appointed chairman of the Committee on Administrative Problems.

St. Louis Dietetic Association. Vera Cernich Lewis writes that the association has several members, including Mary Mueller, Thelma Lison and Vera Cernich Lewis, who also belong to the HEWIBS. The St. Louis HEWIBS have scheduled a busy year of activities in a special effort to call the attention of the business field to the services that trained home economists can render to business. In keeping with this idea, and for the purpose of compiling authentic vocational guidance information, the entire group is conducting a survey in the St. Louis area on "Backgrounds of Home Economists in Business." Other activities of the group are centered on the stimulation of informative advertising, the conservation of food during a national emergency as part of the national defense, student home economics clubs, and a review of consumer education activities in St. Louis.

Texas Dietetic Association. The *Bulletin* for November carries an extensive report of the national meeting in New York by Frances Low.

Virginia Bess Jackson, formerly lunchroom manager in the Dallas Public School Lunchroom System, was married in Colon, Panama Canal Zone, to Mr. J. F. Ferguson. Her address is: Texas Petroleum Company, Bogota, Colombia, South America.

Helen Lerner, formerly dietitian at St. Therese Hospital, Beaumont, was married September 15 to Mr. D. Aron Topek of Houston.

New active members of the American Dietetic Association in Texas are: Wynefred Warren, Fred Roberts Hospital, Corpus Christi; Grace Evelyn Sweatt, University Hall, University of Texas Medical School, Galveston; Beatrice May Lewis, 3230 Oakdale Ave., Houston; Hazel Jane Swift, 419 West Henderson St., Cleburne; and Louise Nickell, Brackenridge Hospital, Austin.

Virginia Dietetic Association. The first meeting of the Richmond Dietetic Association was held at the Medical College. Margaret Bock, Westbrook Sanatorium, was elected president; Bertha Jenkins, Richmond Dairy Company, vice-president; Mabel Gladin, St. Elizabeth's Hospital, secretary; and Harriet Stevens, Medical College, treasurer. Bertha Jenkins showed a technicolor movie which she photographed this summer in the Canadian Rockies, Alaska and the West.

Dietitians of Richmond were hostesses at a tea on September 12 in honor of Dr. Lela Booher who was guest speaker at the School of Industrial Health.

Ruby Lake, Pine Camp Hospital, has announced her marriage to Dr. Thomas Duval Watts of the Medical College of Virginia.

The Blue Ridge Dietetic Association held its third meeting at the University of Virginia Commons, Charlottesville. Doris Woodward, dietitian of the University of Virginia Commons, presided. Reports were given by the following who attended the national meeting in New York: Mrs. Bernice Varner, Virginia representative to the House of Delegates, report of the function and purpose of that body; Mary Alice Grantham, University of Virginia Hospital, Diet Therapy Section; Doris Woodard and Clara Turner, dietitian, Madison College, Administration Section. Interesting discussions followed.

SUNFILLED pure concentrated ORANGE and GRAPEFRUIT JUICES

establish a milestone in processing, packaging and quality achievement. They are true-to-fruit products at their best. Every food element and characteristic, natural to freshly squeezed Florida orange and grapefruit juices, are successfully captured and retained without recourse to adulterants or added preservatives.

Only a percentage of the normal water content has been temporarily borrowed . . . which, when returned by you, insures the same delicious flavor and consistency which Nature endowed.

ACCEPTED AMERICAN MEDICAL ASSN. Canned, Concentrated Orange Juice

COMPARE THESE TYPICAL ANALYSES
(Note vitamin C retention)

	Orange Concentrate; per cent	Concentrate diluted with 9 parts of water by volume; per cent
Moisture	24.0	89.7
Total Solids	76.0	10.3
Ash	2.7	0.4
Protein	3.5	0.5
Reducing Sugars	26.0	3.5
Sucrose	31.3	4.3
Carbohydrate (by difference)	63.3	8.6
Citric acid	6.5	0.85
Calories	2.67 per gm. 76. per oz.	.03 per gm. 10. per oz.

Vitamins—Concentrate: 2.5 mg. ascorbic acid (50 international units Vitamin C) per gram. Concentrate diluted with water (1:9) 680 international units Vitamin C per 100 c.c. or 200 international units per fluid ounce.

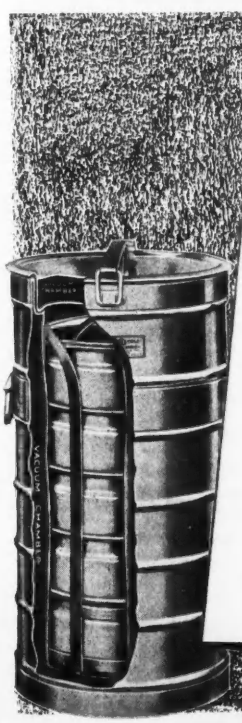
Complimentary trial quantities to institutions on request.

REDUCE YOUR COST-PER-SERVING TO AN UNPRECEDENTED LOW

There are no fluctuating market prices to consider . . . no unpredictable variations in flavor and consistency . . . no spoilage, shrinkage or waste disposal problems . . . no excessive demands on refrigeration facilities . . . only negligible storage space needed.

Try SUNFILLED and *taste* the difference
Buy SUNFILLED and *save* the difference

CITRUS CONCENTRATES, INC.
Dunedin, Florida



Memorandum for Dietitians

"Get posted on the new, simple, low-cost way of handling hot foods in large daily feeding routines that is sweeping the country."

If yours is the responsibility of servicing hot food in hospitals, institutions or any other large activity, you owe it to yourself to get posted on how food handling can be expedited, food handling costs reduced, hotter and better foods provided with

AerVoiD Vacuum Insulated Food Carriers for servicing hot foods, soups, coffee.

With no other effort than putting them in an AerVoiD Carrier and clamping down the cover, hot foods, soups and coffee are kept hot and palatable for hours by the high vacuum insulation of AerVoiD Food Carriers, readily transportable (even miles out-of-doors) for long-distance servicing of hot foods from central kitchen set-ups.

Write today for illustrated literature.

VACUUM CAN COMPANY
23 So. Hoyne Ave. Chicago, Illinois

The first meeting of the Tidewater Dietetic Association was held at the Norfolk General Hospital with the staff dietitians as hostesses. At the November meeting, Dr. W. L. Quennell, medical director, Norfolk General Hospital, discussed "Problems of the Dietitian" followed by a round-table discussion.

Anne DeLong has left the General Hospital, Norfolk, to accept a position at Jennie Edmundson Hospital, Council Bluffs, Iowa. She has been replaced by Erna Mae Behrend, formerly of Doctors Hospital, Washington, D. C.

Eugenia Eley has been transferred from Staten Island, New York, to the Marine Hospital, Norfolk.

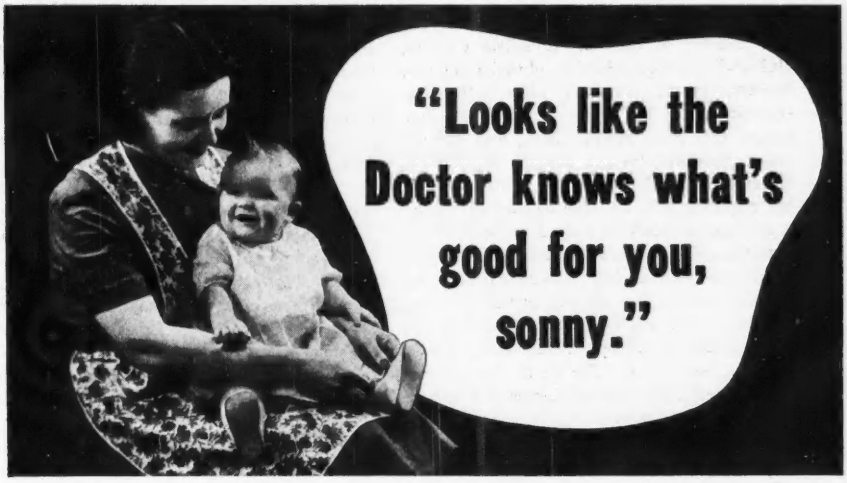
Frances McBeth, dietitian, Home Service Department, Virginia Electric and Power Company, is teaching classes in mass feeding for the Red Cross.

Hazel Powell has accepted a position as dietitian at the King's Daughters Hospital, Portsmouth.

News From Our Advertisers and Exhibitors. *Reynolds Electric Company*, 2659 W. Congress St., Chicago, calls attention to the New Reco Model 422 Mixer. One of its features is the patented spiral wire whip—an exclusive feature in the Reco. Tests have proved that it produces 10 per cent greater volume; it whips cream 25 per cent faster and produces a greater volume of eggs for cakes. It has a "folding-in" action which thoroughly mixes and aerates, resulting in a finer texture. This machine has an ingenious four-speed transmission which permits shifting from one speed to another without stopping the motor. Thus the machine is always under control and the same speed is assured for the same operation. The automatic timer starts and stops the machine automatically, assures uniform mixing of separate batches, and releases operator for other work. All Reco Mixers have the human arm and wrist motion in which the planetary (or arm), the beater (or wrist) and the batch all revolve in the same direction. They are streamlined and finished in a rich battleship gray enamel, with all corners rounded. Made in 22 qt. capacity, they can be equipped with adapter bowl for 12 qt. capacity.

Synthetic vitamin E is now commercially available. Known as Ephynal Acetate, it is being manufactured in the laboratories of *Hoffmann-La Roche, Inc.*, leading producers of synthetic vitamin B_1 (thiamine hydrochloride), B_2 (riboflavin), and C (ascorbic acid). In advance of active marketing, supplies of Ephynal Acetate were investigated by clinicians and research workers at leading universities in all parts of the country, where it was found to be approximately 170 times more active than crude wheat germ oil, best known natural source of vitamin E, and 8 times more active than the refined non-saponifiable fraction of the oil, that it has a wide margin of therapeutic safety, and that prolonged use of it has not been attended or followed by deleterious effects. Outstanding application for vitamin E therapy at present is in the treatment of amyotrophic lateral sclerosis and other nerve disorders due to or associated with trophic or degenerative disturbances of the nervous system, including multiple sclerosis and other spinal cord scleroses, encephalitis, poliomyelitis, and other inflammatory or infectious diseases of the central nervous system. Also, and for the same reasons, it is being used experimentally in the muscular dystrophies—atrophic, spastic, paralytic, etc.

Standard Gas Equipment Corporation announces the new Vulcan 50th Anniversary Streamline Gas Cooking Equipment, said to represent the latest development in gas cooking equipment. The new streamline design and Vulcadur finish are most attractive and durable. A toe base adds to the appearance and keeps the ranges off the floor. Among the many improvements in the new line is the new Super Radial Fin Top with ventilated ring and lid, and angle drilled burner, said to give increased center heat, faster speed, greater economy and wider heat distribution. The top is made of a nickel ferrous alloy. Also new is a two-compartment oven with a solid, removable rack that divides the oven into two evenly heated compartments and which, in many cases, doubles the capacity of ordinary ovens. The entire height of the oven can be used, since roasting pans can be placed directly on the oven bottoms. The ranges have newly designed tops, including a new Even Heat top with aerated burners, new Open Top with circular burners and semi-enclosed self-draining grates, and a larger capacity Fry Top, with new aerated burners. Another new feature is the Expando unit which adds top capacity and gives increased flexibility at low cost. Attention is

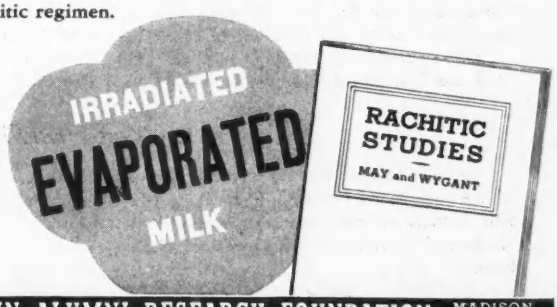


WHEN you start the baby on Irradiated Evaporated Milk, its natural wholesome nourishment plus its *antirachitic benefits* become a fixed routine in daily feeding. . . a valuable, automatic, protective food habit which carries on even after the child no longer has the benefit of the physician's supervision. Rich in calcium, phosphorus and *irradiated for Vitamin D,* it is a food that provides essential nourishment for the proper formation and protection of the infant's skeletal and dental development.

Irradiated Evaporated Milk is not suggested to replace or change—does not interfere with your regular antirachitic regimen. Rather, it helps you achieve the advantages of routine administration of Vitamin D in conjunction with calcium and phosphorus of milk. Your patients will be interested to learn that irradiation provides these extra benefits *without increasing the cost* of this excellent food.

Ask for Copy of "Rachitic Studies"

Drs. Earl W. May and Thelma M. Wygant, in their treatise entitled "RACHITIC STUDIES," report the results of an extended study of the antirachitic value of Irradiated Evaporated Milk. In those cases where infants were fed no other antirachitic, none of the full-term nor weakling infants developed rickets. Among 18 prematures so fed, only two cases developed, one healing when Irradiated Evaporated Milk was continued. Many other advantages of this fine food are recorded in "RACHITIC STUDIES." If you have not received your copy, or would like an additional copy, fill out and mail the coupon below.



WISCONSIN ALUMNI RESEARCH FOUNDATION
Approved for VITAMIN D upon periodic tests

WISCONSIN ALUMNI RESEARCH FOUNDATION MADISON WISCONSIN

Every licensed brand of Irradiated Evaporated Milk is entitled to display this Seal. All irradiated products licensed by the Foundation are periodically tested whether the Seal appears thereon or not.

Please send me free copy of *"Rachitic Studies."* JADA-141

Name.....

Address.....

City..... State.....

(In writing to advertisers, please mention the journal—it helps.)

also directed to the new Complete Cooking Units, which are combinations of various ranges, broilers, fryers, Expando units, etc. The ceramic broiler has a new type of low-glow burner that gives steaks, chops, etc., the so-called charcoal color and flavor. The fryer is of new design with the same capacity as before, but requiring only half the amount of grease. A new snap-action heat control and extra large heat transmitting tubes keep fat at frying temperature for best results. A catalog illustrating the new Vulcan line, as well as the complete Cooking Units will be sent upon request to Standard Gas Equipment Corporation, 18 East 41st St., New York. The U. S. Government has ordered 1000 Vulcan Ranges for use in camps and cantonments.

Michigan Alkali Company, makers of Wyandotte cleaners and cleansers, and one of the nation's largest and most important chemical industries, celebrated its golden jubilee October 17 with a banquet in honor of 567 veteran employees, 52 of whom have been with the company for more than 40 years.

Lister Brothers, Inc., makers of special purpose foods, believe that dietitians will be interested in Listers Spread, which "looks and tastes like dairy butter, even though it is fat and calory free." It should brighten butterless meals for fat-restricted patients. It sells for 85 cents per tub (16 oz. liquid measure) less the professional discount of 25 per cent, and may be obtained directly from the firm at 41 East 42nd St., New York. They will be glad to send sample day's menus for Low Fat Diet (hypercholesterolemia, cholelithiasis, etc.); Low Fat Diabetic Diet; Obesity Diet; and Low Fat Diet (cholecystitis, chronic and acute); to those interested.

The Department of Nutrition, *National Live Stock and Meat Board*, Chicago, has prepared a third revised edition of Food Value Charts, seven in number, in colors, priced 40 cents. All material presented in these charts has been taken from recognized authorities and approved by the Council on Foods and Nutrition of the American Medical Association. The following booklets will also be forwarded upon application: Meat Carving Made Easy; All About Pork; Lamb Recipes and Menus; Beef in the Menu; and Lard in 133 Recipes.

Mead Johnson & Company, Evansville, Indiana, writes that a happy solution to the problem of the school child's breakfast is Pablum. Six times richer than fluid milk in calcium, ten times higher than spinach in iron, containing vitamins B_1 and G, Pablum furnishes factors especially needed by the school child. This palatable cereal requires no further cooking and can be prepared by adding milk or water of any desired temperature.

Marie Gifford's Kitchen Service, *Armour and Company*, Union Stock Yards, Chicago, has prepared an excellent folder giving directions for the preparation of the various glandular meats which she points out are good sources of thiamin, riboflavin and nicotinic acid, kidneys in particular being a good source of vitamin A. This bulletin and others, one of which concerns pie crust and recipes for favorite pies, are available routinely to those interested.

Johnson-Appleby Company, Cambridge, Massachusetts, a more recent addition to the growing list of exhibitors at the annual meeting, is an old established firm—35 years old, to be exact—which carries an excellent line of preserves, jams, jellies, marmalades, relishes, cranberry sauce, material for pie fillings, oils, flavorings, baking powders, table fruits and vegetables.

Have You Heard?

(The following material has been contributed by the members of the Washington State Dietetic Association, and has been compiled by Margaret E. Terrell of the University of Washington.)

➢➢➢➢

Food Preparation

There are many uses for smooth, mild, cream cheese. It may be incorporated in salad dressing, used for sandwich fillings and occasionally is found in cake frostings. It is an excellent carrier for flavoring and texture materials such as chives, pimiento, celery or chopped fruits. But it is generally considered too expensive for frequent use. Cottage cheese, which is comparatively inexpensive, can be converted into a first-rate cream product by putting the dry curds through a grinder or mechanical purée machine. Plain or whipped cream, or mayon-

The Newer Concepts of Meat in Nutrition

Meat

AND THE ESSENTIAL

Amino Acids

ALTHOUGH protein has long been regarded as an essential component of the human dietary, the role of individual amino acids has only recently been learned. The theory that proteins are broken down into their component amino acids which are then simply regrouped by the body for protein synthesis has been generally accepted, but is now being challenged by some investigators.

Alcock[1] believes that protein synthesis starts with substances more elementary than amino acids, basing this statement upon the fact that animals can produce dispensable amino acids when these are not provided by the diet. With regard to indispensable or essential amino acids, he states that an animal from whom tryptophane is withheld secretes pepsin which contains tryptophane and continues to survive for a limited time with growth of hair and skin. Alcock reasons that tryptophane and the other essential amino acids are needed for their "specific functions," and not because the organism cannot synthesize them for protein formation. The varied manifestations of essential protein deprivation—failure of growth, loss of hair, anemia, nervous irritability, susceptibility to infection, loss of weight—suggest a hormone-like action which the essential amino acids might perform.

Regardless of the validity of Alcock's theory, the indispensability of certain amino acids is acknowledged by all workers. These ten[2]—arginine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophane, and valine—must be fed daily in adequate quantities for optimum growth and tissue repair. Meat, one of the few sources of complete protein, provides all the essential amino acids in abundant amounts. Daily consumption of 60 to 80 Gm. of meat protein (300 to 400 Gm. of meat) is assurance the organism is receiving adequate amounts of the indispensable amino acids.

[1]Alcock, R. S.: Synthesis of Proteins in Vivo, Physiol. Rev. 16:1 (Jan.) 1936.

[2]Jones, D. B.: Protein Requirements of Man, in Year Book of Agriculture: Food and Life, Washington, D.C., U. S. Gov't. Ptg. Off., 1939, p. 177.

The Seal of Acceptance denotes that the statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

American Meat Institute

CHICAGO

naise may be whipped into it to give the desired consistency, and the different flavoring materials added.

A delicious orange charlotte may be made of left-over orange sherbet. If there is not enough to serve as a pudding, it may be used as a filling for sponge or white butter cake. When this is dusted lightly with powdered sugar, cut into one-portion squares and garnished with whipped cream, it makes an attractive dessert.

Many simple puddings and cakes can be made more exciting by varying the flavoring materials added to the whipped cream topping. The following have been tried with very good results: peanut brittle rolled or ground and folded into the cream for butterscotch pudding; peppermint stick candy for chocolate cake or chocolate cornstarch pudding; toasted cocoanut for caramel pudding; and shaved almonds for gingerbread. These materials add interest not only to the flavor but also to the texture.

In pudding recipes calling for large amounts of lemon juice, grapefruit juice may be substituted for about one-fourth of the lemon juice with no marked change in flavor.

To fill cream puffs: Fill a pastry bag with cream puff filling and insert the tube into the cream puff to fill.

The Residence Dining Room

When students are requested to furnish a napkin ring or clip to identify their napkins and keep them in order, an extremely heterogeneous assortment results. An orderly dining room with tasteful surroundings has a subtle influence upon the social development of the residents. Very attractive clips may be made of copper with a brass insignia and numerals stamped upon them and corresponding to room numbers. These may be inexpensively made by any metal worker. Cleaning of the clips is an easy job and keeping track of napkins no longer a problem.

The possession of a variety of flower containers is helpful in making the tables attractive throughout the year. It is often difficult to procure attractive ones, of good shape and color and small enough to look well with only a few flowers. Hall china salad bowls answer this problem. These are approximately 7½ inches in diameter and can be procured in a number of suitable colors, such as apple green and lustre green. They serve as a suitable background for large flowers that are floated on water, such as dahlias and chrysanthemums, or may be used with frogs for a great variety of smaller flowers.

Most institutions discard plates of an outmoded pattern that are in good condition but do not harmonize with other china. These plates, if coated with walnut varnish, will look like wooden plates and serve as an excellent background for table decorations: in the fall, for gourds or bright-colored leaves, or the many-colored vegetables and fruits; in winter, pine cones and needles, brightened by a few of the winter berries. Candleholders may be made to harmonize by using walnut-stained wooden blocks cut 4″ x 4″ x 1″, the top edge bevelled and a hole cut in the center the size of the candle base.

Flat-sided fish bowls, with watch glass cover, can be converted into very interesting rock gardens, using carefully selected rocks, small ferns and moss. Tiny evergreen trees, such as cedar, spruce and fir, with their feathery needles, may be arranged to give a most interesting effect. The covered fish bowl serves two purposes: it is easier to keep those plants moist that require a great deal of moisture, and the contents cannot readily be disarranged.

Service to Hospital Patients

The service of nourishments is frequently a problem in many hospitals because of the possibility of misappropriation, faulty estimation of requirements, and lack of proper care. Many difficulties may be avoided by having a tray maid who is gracious in manner, alert, and attractive in appearance, call on each general diet patient, take the order for nourishment, prepare and serve it. This system, where practiced, has been found to work very satisfactorily and actual figures have shown that the amount saved in food was enough to pay a good share of the maid's salary.

Housekeeping

It is well to line dresser drawers with glazed wrapping paper. When the lining of the drawers is left to the students, they frequently do

VioBin

WHEAT GERM OIL

Solvent extracted at low temperatures; contains 4 milligrams tocopherol per gram; guaranteed to retain its potency for a year after purchase.

VioBin

DEFATTED WHEAT GERM

1. Does not become rancid or deteriorate.
2. Somewhat richer in Vitamin B_1; 15% higher in riboflavin and nicotinic acid than germ from which it is derived.
3. Fully prepared and ready to eat.

These two outstanding Wheat Germ products have had four years of acceptance by commercial organizations and laboratory workers.

For complete details and prices, write to the:

VIOBIN CORPORATION, Room 816
155 N. Clark St., Chicago, Ill.

Canadian Branch: VioBin (Canada) Limited
637 Craig St., West., Montreal, Quebec

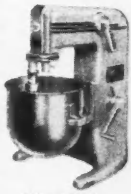
The Choice OF Expert Chefs

Reco 4-SPEED MIXER

Your interest in the new Reco Mixer, at the recent Dietitians' convention exhibit, is appreciated. And Reco has become the center of attraction with dietitians and expert chefs, everywhere. The outstanding advantages in the Reco are:

1. **4 SPEEDS**
2. **Automatic Timer**
3. **Ability to shift speeds without stopping motor**
4. **SPIRAL Wire Whip**

These features assure finer, smoother results, 10% more volume, 25% faster action. See the Reco at your supply dealers or send for bulletin.



4-SPEEDS
22 quart capacity
Automatic Timer

REYNOLDS ELECTRIC COMPANY

MAKERS OF RECO MIXERS, CHOPPERS, PEELERS

2659 West Congress Street, Chicago, Ill.

Here's Inspiration to Delicate Appetites...

Milapaco Tray Cover in New Large Size (No. 30501–53) designed especially for Bakelite Tray Model S No. 124 and similar sizes. Also ideal for decoration under glass dresser tops and table tops.

Make side dish portions more attractive—with Milapaco Souffle Cups and SHALLOW Jelly Dishes. Convenient, sanitary, economical. Write for samples.

Milapaco Lace Paper Tray Covers!

The skilled hospital dietitian practices a subtle psychology in preparing luncheon trays, for she knows the importance of appealing to the eye as well as to the palate. Tray decoration plays a big part here. Add the dainty beauty of Milapaco Lace Paper Tray Covers to these carefully planned meals and watch your patients' eyes brighten in happy anticipation. It's an extra touch of artistry that goes a long way towards rousing a waning appetite.

★ *See your Jobber for samples of many attractive designs and patterns in Milapaco Lace Paper Tray Covers or write direct for samples.*

Milapaco
Lace Papers of Character
REG. U.S. PAT. OFF.

MILWAUKEE LACE PAPER COMPANY
1308 East Meinecke Ave., Milwaukee, Wisconsin
Established in 1899

(In writing to advertisers, please mention the journal—it helps.)

not do it, and spilled face powder, lipstick and fingernail polish are very difficult to remove. If the paper is heavy, it will save the bottom of the drawer and will be easy for the maid to remove during cleaning. To facilitate work, paper should be bought of a size to fit the width of the drawer.

Printed linen towelling in a number of designs and colors will serve as dresser scarves and buffet covers.

It is necessary to re-cover ironing boards frequently when they are used by a great many people. The re-covering will be made much easier if the unbleached muslin for the covers is bought in a width to correspond with the length of the ironing board. In cutting the covers, the strip will need to be as long as the ironing board is wide, plus a few inches for turning under and for shrinkage when laundered.

In the student rooms, wall finish may be a problem because of the moving of furniture, sitting on the bed and leaning against the wall, and the use of tape and tacks in hanging pictures. After considerable difficulty in maintaining walls at the University of Washington, a decision was made to try a good quality of wallpaper and finish it with shellac or clear lacquer. Waterproof varnish was used on window sills and places where there was frequent recurrence of stain and hard wear. The selection of different papers permitted pleasing variety. The lacquered paper is very easy to clean and gives a home-like, attractive appearance to student rooms.

➢➢≺≺

WE CAN NOW SEE that the teaching of science has until recently assumed the normal internal chemistry of each species to be somewhat more rigidly specific than it really is. The newer knowledge of nutrition shows us, among other things, how our daily choice of food influences that internal environment of the body which directly environs and conditions the life process. And the new knowledge has brought a really new view.

For hitherto, while we included nutrition among environmental factors by definition, yet when we actually thought about environment it was chiefly to think about our surroundings. As we come to realize how significantly our daily choice and use of food influences that more important environment which we carry within our own bodies, we see that we ourselves have a much larger measure of ability to improve the life process than science has hitherto thought.—*Sherman, H. C. and Lanford, C. S.: Essentials of Nutrition, p. 10, New York: The Macmillan Company, 1940.*

FLYING RESTAURANT

TWA Stratoliners Serve Hot Meals . . . on Dishes Washed WITH WYANDOTTE

STOCKING UP: Stratoliner is provisioned with thermos jugs of coffee, special cabinets of hot food. Thermos jugs are kept sweet and clean and stain-free with Wyandotte Keego. All metal equipment is kept bright with Wyandotte Detergent.

IN YOUR KITCHEN: Wyandotte Cleaning Products will give the same economical, efficient cleaning and dishwashing. There is a Wyandotte Product specially made for any local water condition. Your Wyandotte Representative will be glad to demonstrate. Write us today.

BACK STAGE: TWA kitchens are bright, clean, efficiently managed. Wyandotte Cleaning Products are used throughout—for all cleaning and deodorizing operations. By standardizing on Wyandotte, TWA saves money, improves cleaning results, keeps patrons pleased.

Wyandotte

SERVICE REPRESENTATIVES IN 88 CITIES

THE J·B·FORD SALES CO· WYANDOTTE MICH·

(In writing to advertisers, please mention the journal—it helps.)

WHO'S WHO IN THIS ISSUE

Henry C. Sherman, Ph.D., needs no introduction to readers of this JOURNAL. As Mitchell professor of chemistry and executive officer of the Department of Chemistry, Columbia University, his researches and statements concerning the chemistry of foods have long been accepted as authoritative. More recent additions to the list of books which Dr. Sherman has authored are *Food and Health*, 1934, and *Essentials of Nutrition* (with Caroline Sherman Lanford) 1940.

Norman Jolliffe, M.D., is associate professor of medicine, New York University, College of Medicine, and chief of the medical service, Psychiatric Division, Bellevue Hospital.

M. L. Wilson, adviser on nutrition to Miss Harriet Elliott, member, National Advisory Defense Commission, is also director of Extension Work, U. S. Department of Agriculture. Mr. Wilson was once a farmer, later a state extension leader and more recently Undersecretary of Agriculture. He is a graduate of Iowa State College and received his master's degree from the University of Wisconsin.

Melva Bakkie, A.B., Iowa State Teachers College, and M.S., Kansas State College, also attended summer sessions at the University of Chicago and Teachers College, Columbia University. She was formerly a teacher of home economics and conducted community education programs in nutrition. Miss Bakkie is nutrition consultant for the American Red Cross, Washington, D. C.

Bertha E. Nettleton is Consumer Service Department assistant for the promotion of institution products of General Foods Corporation. Previously she was head of the Research Department of Childs Company where she organized the department for supervision of food preparation. At the time, home economics trained women were in charge of the food preparation in each of the 110 restaurants of the system. At one time Miss Nettleton was in charge of the Horace Mann Cafeteria at Teachers College, Columbia University, when the cafeteria was used as a practice field in one of the institution management courses. Following her academic training, Miss Nettleton was first employed in the Laboratory Kitchens in Boston as one of the food production managers in that large, popular-priced restaurant organization. Bertha Stevenson, who owned and operated these restaurants, was the first operator, Miss Nettleton believes, to employ home economics trained women as food production managers.

William H. Cathcart, Ph.D., is director of laboratories at the American Institute of Baking, Chicago.

MILK FOR CHILDREN WITH FEVER

***To the Editor:*—Why do some physicians object to children taking milk when they have a slight elevation of temperature from a cold?**

M.D., Pennsylvania.

ANSWER.—Certain physicians believe that, in acute febrile diseases or in colds with a slight elevation of temperature, the digestive functions may be impaired to some extent and that fat in the diet must be reduced and protein also held at a minimum. For this reason they may object to children taking milk during febrile diseases.

There is no scientific evidence to indicate that, during a cold with a slight elevation of temperature, such impairment of digestion occurs. Hence the rationale of limiting milk at these times is questionable.—*Queries and Minor Notes, J.A.M.A., 114:2240, 1940.*